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SMITHSONIAN METEOROLOGICAL TABLES

[BASED ON GUYOT'S METEOROLOGICAL AND PHYSICAL TABLES]

FOURTH REVISED EDITION
(Corrected to January, 1918)

(PUBLICATION 2493)

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ADVERTISEMENT TO FOURTH REVISED EDITION.

THE original edition of the Smithsonian Meteorological Tables was issued in 1893, and revised editions were published in 1896, 1897, and 1907. A fourth revised edition is here presented, which has been prepared under the direction of Professor Charles F. Marvin, Chief of the U.S. Weather Bureau, assisted by Professor Herbert H. Kimball. They have had at their disposal numerous notes left by the late Professor Cleveland Abbe, and have consulted with officials of the U.S. Bureau of Standards and of other Government bureaus relative to the value of certain physical constants that have entered into the calculation of the tables.

All errata thus far detected in the earlier editions have here been corrected. New vapor pressure tables, derived from the latest experimental values by means of a modification of Van der Waals interpolation formula devised by Professor Marvin, have been introduced. The table of relative acceleration of gravity at different latitudes has been recomputed from a new equation based upon the latest investigations of the U.S. Coast and Geodetic Survey. These values have been employed in reducing barometric readings to the standard value of gravity adopted by the International Bureau of Weights and Measures, supplementing a table that has been introduced for directly reducing barometer readings from the value of gravity at the place of observation to its standard value.

The new values of vapor pressure and of gravity acceleration thus obtained, together with a recent and more accurate determination of the density of mercury, have called for an extensive revision of numerous other tables, and especially of those for the reduction of psychrometric observations, and the barometrical tables.

Among the new tables added are those for converting barometric inches and barometric millimeters into millibars, for determining heights from pressures expressed in dynamic units, tables of gradient winds, and tables giving the duration of astronomical and civil twilight, and the transmission percentages of radiation through moist air.

The tables of International Meteorological Symbols, of Cloud Classification, of the Beaufort Scale of Winds, of the Beaufort Weather Notation, and the List of Meteorological Stations, are among those extensively revised.

Tables for reducing barometric readings to sea level, and tables of logarithms of numbers, of natural sines and cosines, of tangents and cotangents, and for dividing by 28, 29, and 31, with a few others, have been omitted from this edition.

CHARLES D. WALCOTT,
Secretary.

SMITHSONIAN INSTITUTION,
March, 1918.

ADVERTISEMENT TO THIRD REVISED EDITION

The original edition of Smithsonian Meteorological Tables was issued in 1893, and revised editions were published in 1896 and 1897. A third revised edition is here presented, which has been prepared at the request of the late Professor Langley by the coöperation of Professors Alexander McAdie, Charles F. Marvin, and Cleveland Abbe.

All errata thus far detected have been corrected upon the plates, the Marvin vapor tensions over ice have been introduced, Professor F. H. Bigelow's System of Notation and Formulæ has been added, the List of Meteorological Stations has been revised, and the International Meteorological Symbols, together with the Beaufort Notation, are given at the close of the volume.

R. RATHBUN,
Acting Secretary.

SMITHSONIAN INSTITUTION,
December, 1906.

ADVERTISEMENT TO SECOND REVISED EDITION.

The edition of the Smithsonian Meteorological Tables issued in 1893 having become exhausted, a careful examination of the work has been made, at my request, by Mr. Alexander McAdie, of the United States Weather Bureau, and a revised edition was published in 1896, with corrections upon the plates and a few slight changes. The International Meteorological Symbols and an Index were also added.

The demand for the work has been so great that it becomes necessary to print a new edition of the revised work, which is here presented with corrections to date.

S. P. LANGLEY,
Secretary.

SMITHSONIAN INSTITUTION,
WASHINGTON CITY,
October 30, 1897.

PREFACE TO EDITION OF 1893.

In connection with the system of meteorological observations established by the Smithsonian Institution about 1850, a collection of meteorological tables was compiled by Dr. ARNOLD GUYOT, at the request of Secretary HENRY, and published in 1852 as a volume of the *Miscellaneous Collections*.

Five years later, in 1857, a second edition was published after careful revision by the author, and the various series of tables were so enlarged as to extend the work from 212 to over 600 pages.

In 1859 a third edition was published, with further amendments.

Although designed primarily for the meteorological observers reporting to the Smithsonian Institution, the tables obtained a much wider circulation, and were extensively used by meteorologists and physicists in Europe and in the United States.

After twenty-five years of valuable service, the work was again revised by the author; and the fourth edition, containing over 700 pages, was published in 1884. Before finishing the last few tables, Dr. GUYOT died, and the completion of the work was intrusted to his assistant, Prof. WM. LIBBEY, JR., who executed the duties of final editor.

In a few years the demand for the tables exhausted the edition, and thereupon it appeared desirable to recast entirely the work. After very careful consideration, I decided to publish the new tables in three parts: METEOROLOGICAL TABLES, GEOGRAPHICAL TABLES, and PHYSICAL TABLES, each representative of the latest knowledge in its field, and independent of the others; but the three forming a homogeneous series.

Although thus historically related to Dr. Guyot's Tables, the present work is so substantially changed with respect to material, arrangement, and presentation that it is not a fifth edition of the older tables, but essentially a new publication.

In its preparation the advantage of conformity with the recently issued *International Meteorological Tables* has been kept steadily in view, and so far as consistent with other decisions, the constants and methods there employed have been followed. The most important difference in constants is the relation of the yard to the metre. The value provisionally adopted by the Bureau of Weights and Measures of the United States Coast and Geodetic Survey,

$$1 \text{ metre} = 39.3700 \text{ inches},$$

has been used here in the conversion-tables of metric and English linear measures, and in the transformation of all formulæ involving such conversions.

A large number of tables have been newly computed; those taken from the *International Meteorological Tables* and other official sources are credited in the introduction.

To Prof. Wm. Libbey, Jr., especial acknowledgments are due for a large amount of attention given to the present work. Prof. Libbey had already completed a revision, involving considerable recomputation, of the meteorological tables contained in the last edition of Guyot's Tables, when it was determined to adopt new values for many of the constants, and to have the present volume set with new type. This involved a large amount of new computation, which was placed under the direction of Mr. George E. Curtis, who has also written the text, and has carefully prepared the whole manuscript and carried it through the press. To Mr. Curtis's interest, and to his special experience as a meteorologist, the present volume is therefore largely due.

Prof. Libbey has contributed Tables 38, 39, 55, 56, 61, 74, 77, 89, and 90, and has also read the proof-sheets of the entire work.

I desire to express my acknowledgments to Prof. Cleveland Abbe, for the manuscript of Tables 32, 81, 82, 83, 84, 85, 86; to Mr. H. A. Hazen, for Tables 49, 50, 94, 95, 96, which have been taken from his *Hand-book of Meteorological Tables;* and also to the Superintendent of the United States Coast and Geodetic Survey, the Chief Signal Officer of the Army, and the Chief of the Weather Bureau, for much valuable counsel during the progress of the work.

S. P. LANGLEY,
Secretary.

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INTRODUCTION.

DESCRIPTION AND USE OF TABLES.

THERMOMETRY.

The present standard for exact thermometry is the normal centigrade scale of the constant-volume hydrogen thermometer as defined by the International Bureau of Weights and Measures. The constant volume is one liter and the pressure at the freezing point is one meter of mercury reduced to freezing and standard gravity. The scale is completely defined by designating the temperature of melting ice, 0°, and of condensing steam, 100°, both under standard atmospheric pressure. All other thermometric scales that depend upon the physical properties of substances may by definition be made to coincide at the ice point and the boiling point with the normal scale as above defined, but they will diverge more or less from it and from each other at all other points. However, by international consent it is customary in most cases to refer other working scales to the hydrogen scale.

The absolute or thermodynamic scale. To obviate the difficulty which arises because thermometers of different type and substance inherently disagree except at the fixed points, Lord Kelvin proposed that temperatures be defined by reference to certain thermodynamic laws. This course furnishes a scale independent of the nature or properties of any particular substance. The resulting scale has been variously named the absolute, the thermodynamic, and, more recently, in honor of its author, the Kelvin scale. The temperature of melting ice by this scale on the centigrade basis is not as yet accurately known, but it is very nearly 273°.13, and that of the boiling point, 373°.13.

Many problems in physics and meteorology call for the use of the absolute scale; but it is not convenient, and in many cases not necessary, to adhere strictly to the true thermodynamic scale. In fact, the general requirements of science will very largely be met by the use of an approximate absolute scale which for the centigrade system is defined by the equation

$$T = (273.^\circ + t^\circ \text{ C.})$$

The observed quantity, t°, may be referred to the normal hydrogen centigrade scale or be determined by any acceptable thermometric method.

This scale differs from the true Kelvin scale, first, because 273° is not the exact value of the ice point on the Kelvin scale, second, because each observed value of t° other than 0° or 100° requires a particular correction to

convert it to the corresponding value on the Kelvin scale. These corrections will differ according to the kind of thermometer used in obtaining the value t°, and while they are small for temperatures between 0° and 100° they are large at extreme temperatures and are important in all questions involving thermometric precision.

Since, however, the approximate absolute scale is sufficiently exact for nearly all purposes, and especially since it is most convenient in computations and in the publication of results, much confusion and uncertainty of terminology and meaning will be obviated if scientists will agree to give the approximate absolute scale a particular name of its own.

For the purpose of these tables the name *Approximate Absolute* will be employed, and in accordance therewith thermometric scales may be designated as follows:—

Scale.	Ice point.	Boiling point.	Symbol.
Centigrade	0°	100°	*C.*
Fahrenheit	32	212	*F.* or Fahr.
Reaumur	0	80	*R.*
Thermodynamic Absolute Kelvin	273.13 *C.* ± 491.6 *F.* ± (Names strictly synonymous and strictly one ideal scale.)	373.13 *C.* ± 671.6 *F.* ±	*A.* or *K.*
Approximate Absolute	273	373	*A.A.*

Table 1. *Conversion of the Approximate Absolute thermometric scale to the Centigrade, Fahrenheit, and Reaumur scales.*

The equivalent values of the four scales are given for every degree on the Approximate Absolute scale from 375° to 0°.

By the help of the table of proportional parts preceding this table, it is also convenient for converting Fahrenheit to Centigrade and Reaumur, and Centigrade to Fahrenheit and Reaumur.

The formulæ expressing the relations between the different scales are also given, in which

$A.A.^\circ$ = Temperature — Approximate Absolute Scale.
$C.^\circ$ = Temperature — Centigrade Scale.
$F.^\circ$ = Temperature — Fahrenheit Scale.
$R.^\circ$ = Temperature — Reaumur Scale.

Examples:

To convert 285°.5 Approximate Absolute into Centigrade, Fahrenheit, and Reaumur.

From the table,	285° *A.A.* =	12° *C.* =	53°.6 *F.* =	9°.6 *R.*
From the proportional parts,	0.5 =	0.5 =	0.9 =	0.4
	285.5 *A.A.* =	12.5 *C.* =	54.5 *F.* =	10.0 *R.*

To convert 16°.9 Centigrade to Approximate Absolute, Fahrenheit, and Reaumur.

From the table,	16° C.	= 289° A.A.	= 60°.8 F.	= 12°.8 R.
From the proportional parts	0.9	= 0.9	= 1.6	= 0.7
	16.9 C.	= 289.9 A.A.	= 62.4 F.	= 13.5 R.

Or,
$$16^\circ.9 \times 2\left(1 - \frac{1}{10}\right) + 32 = \begin{array}{r} 33.8 \\ -\ 3.4 \\ 32.0 \\ \hline 62.4\ F. \end{array}$$

To convert 147°.7 Fahrenheit to Approximate Absolute, Centigrade, and Reaumur.

From the table,	140° F.	= 333° A.A.	= 60° C.	= 48° R.
From the proportional parts	7.7	= 4.3	= 4.3	= 3.4
	147.7 F.	= 337.3 A.A.	= 64.3 C.	= 51.4 R.

Or,
$$\frac{147.7 - 32.0}{2}\left(1 + \frac{1}{10} + \frac{1}{100} + \frac{1}{1000}\text{ etc.}\right) = \begin{array}{r} 57.85 \\ +\ 5.78 \\ +\ .58 \\ +\ .06 \\ \hline 64.27\ C. \end{array}$$

Fahrenheit may also be reduced to Approximate Absolute by obtaining its equivalent in Centigrade from Table 2 and adding 273 to the result.

To convert 18°.3 Reaumur to Approximate Absolute, Centigrade, and Fahrenheit.

From the table,	16° R.	= 293° A.A.	= 20° C.	= 68° F.
From the proportional parts,	2.3	= 2.9	= 2.9	= 5.2
	18.3 R.	= 295.9 A.A.	= 22.9 C.	= 73.2 F.

Or, $18.3 \times \frac{5}{4} = \frac{91.5}{4} = 22.9$ C., and $(18.3 \times \frac{9}{4}) + 32 = \frac{164.7}{4} + 32 = 73.2$ F.

TABLE 2.

Table 2. *Conversion of readings of the Fahrenheit thermometer to readings Centigrade.*

The conversion of Fahrenheit temperatures to Centigrade temperatures is given for every tenth of a degree from + 130°.9 F. to − 120°.9 F. The side argument is the whole number of degrees Fahrenheit, and the top argument, tenths of a degree Fahrenheit; interpolation to hundredths of a degree, when desired, is readily effected mentally. The tabular values are given to hundredths of a degree Centigrade.

The formula for conversion is

$$C^\circ = \frac{5}{9}(F^\circ - 32^\circ)$$

where F° is a given temperature Fahrenheit, and C° the corresponding temperature Centigrade.

Example:

To convert 79°.7 Fahrenheit to Centigrade.
The table gives directly 26°.50 *C.*

For conversions of temperatures outside the limits of the table use Table 1.

Table 3. *Conversion of readings of the Centigrade thermometer to readings Fahrenheit.*

The conversion of Centigrade temperatures to Fahrenheit temperatures is given for every tenth of a degree Centigrade from + 60°.9 to − 90°.9 *C.* The tabular values are expressed in hundredths of a degree Fahrenheit.

The formula for conversion is

$$F^\circ = \frac{9}{5}C^\circ + 32^\circ$$

where C° is a given temperature Centigrade, and F° the corresponding temperature Fahrenheit.

For conversions of temperatures outside the limits of the table, use Table 1 or 4.

Table 4. *Conversion of readings of the Centigrade thermometer near the boiling point to readings Fahrenheit.*

This is an extension of Table 3 from 90°.0 to 100°.9 Centigrade.

Example:

To convert 95°.74 Centigrade to Fahrenheit.

From the table,	95°.70 *C.*	=	204°.26 *F.*
By interpolation,	0.04	=	0.07
	95°.74 *C.*	=	204°.33 *F.*

Table 5. *Conversion of differences Fahrenheit to differences Centigrade.*

The table gives for every tenth of a degree from 0° to 20°.9 *F.* the corresponding lengths of the Centigrade scale.

TABLE 6.

Table 6. *Conversion of differences Centigrade to differences Fahrenheit.*

The table gives for every tenth of a degree from 0° to 9°.9 *C.* the corresponding lengths of the Fahrenheit scale.

Example:

To find the equivalent difference in Fahrenheit degrees for a difference of 4°.72 Centigrade.

From the table,	4°.70 *C.*	=	8°.46 *F.*
From the table by moving the decimal point for 0.2,	0.02	=	0.04
	4°.72 *C.*	=	8°.50 *F.*

TABLES 7, 8.

Tables 7, 8. *Correction for the temperature of the emergent mercurial column of thermometers.*

When the temperature of the thermometer stem containing a portion of the mercury column is materially different from that of the bulb, a correction needs to be applied to the observed reading unless the instrument has been previously graduated for the condition of use. This correction frequently becomes necessary in physical experiments where the bulb only, or else the bulb with a portion of the stem, is immersed in a bath whose temperature is to be determined. In meteorological observations the correction may become appreciable in wet-bulb, dew-point, and solar-radiation thermometers, when the temperature of the bulb is considerably above or below the air temperature.

If t' be the average temperature of the emergent mercury column, t the observed reading of the thermometer, n the length of the mercury in the emergent stem in scale degrees, and a the apparent expansion of mercury in glass for 1°, the correction is given by the expression

$$an\,(t - t'), \text{ or } -an\,(t' - t)$$

which latter may be the more convenient form when t' is greater than t.

The value of a varies with the composition of the glass of which the thermometer stem is composed. For glass of unknown composition the best average value for centigrade temperatures appears to be 0.000155, while for stems of Jena 16^{III}, or similar glasses, or Jena 59^{III}, the values 0.00016 for the former and 0.000165 for the latter may be preferred. (Letter from U.S. Bureau of Standards dated January 5, 1918.)

The use of the formula given above presupposes that the mean temperature of the emergent column has been determined. This temperature may be approximately obtained in one of three ways. (1) By a "fadenthermometer" (Buckingham, Bulletin, Bureau of Standards, 8, 239, 1911, Scientific Paper 170); (2) by exploring the temperature distribution along the stem and calculating the mean temperature; (3) by suspending along the side of, or attaching to the stem, a single thermometer. If properly placed this

thermometer will indicate the temperature of the emergent mercurial column to an accuracy sufficient for many purposes. Under conditions ordinarily met with in practice it is desirable to place the bulb of the auxiliary thermometer at some point below the middle of the emergent column.

It is to be noted that the correction sought is directly proportional to the value of α, and that this may vary for glass stems of different composition from 0.00015 to 0.000165 for Centigrade temperatures. For thermometers ordinarily used in meteorological work, however, 0.000155 appears to be a good average value for Centigrade temperatures (0.000086 for Fahrenheit temperatures), and the correction formulæ, therefore, are,

$$T = t - 0.000086\, n\, (t' - t) \text{ Fahrenheit temperatures.}$$
$$T = t - 0.000155\, n\, (t' - t) \text{ Centigrade temperatures.}$$

In the above, T = Corrected temperature.
t = Observed temperature.
t' = Mean temperature of the glass stem and emergent mercury column.
n = Length of mercury in the emergent stem in scale degrees.

When t' is $\left\{\begin{matrix}\text{higher}\\ \text{lower}\end{matrix}\right\}$ than t the numerical correction is to be $\left\{\begin{matrix}\text{subtracted.}\\ \text{added.}\end{matrix}\right\}$

Table 7 gives corrections computed to 0°.01 for Fahrenheit thermometers from the equation $C = -0.000086\, n\, (t' - t)$. The side argument, n, is given for 10° intervals from 10° to 130°; the top argument, $t' - t$, for 10° intervals from 10° to 100°.

Table 8 gives corrections computed to 0°.01 for Centigrade thermometers from the equation $C = -0.000155\, n\, (t' - t)$. The side argument, n, is given for 10° intervals from 10° to 100°; the top argument, $t' - t$, for 10° intervals from 10° to 80°.

Example:

The observed temperature of a black-bulb thermometer is 120°.4 *F.*, the temperature of the glass stem is 55°.2 *F.*, and the length of mercury in the emergent stem is 130° *F.* To find the corrected temperature. With n = 130° *F.* and $t' - t$ = − 65° *F.*, as arguments, Table 7 gives the correction 0°.7 *F.*, which by the above rule is to be added to the observed temperature. The corrected temperature is therefore 121°.1 *F.*

CONVERSIONS INVOLVING LINEAR MEASURES.

The fundamental unit of length is the meter, the length of which is equal to the distance between the defining lines on the international prototype meter at the International Bureau of Weights and Measures (near Paris) when this standard is at the temperature of melting ice (0° *C*). The relation

here adopted between the meter and the yard, the English measure of length, is 1 meter = 39.3700 inches, as legalized by Act of U.S. Congress, July 28, 1866. This U.S. Standard of length must be distinguished from the British Imperial yard, comparisons of which with the international prototype meter give the relation 1 meter = 39.370113 inches. (See Smithsonian Physical Tables, 1916, p. 7, Table 3.)

Table 9. *Inches into millimeters.* **TABLE 9.**

1 inch = 25.40005 millimeters.

The argument is given for every hundredth of an inch up to 32.00 inches, and the tabular values are given to hundredths of a millimeter. A table of proportional parts for thousandths of an inch is added on each page.

Example:

To convert 24.362 inches to millimeters.
The table gives (p. 20).

(24.36 + .002) inches = (618.75 + 0.05) mm. = 618.80 mm.

Table 10. *Millimeters into inches.* **TABLE 10.**

From 0 to 400 mm. the argument is given to every millimeter, with subsidiary interpolation tables for tenths and hundredths of a millimeter. The tabular values are given to four decimals. From 400 to 1000 mm., covering the numerical values which are of frequent use in meteorology for the conversion of barometric readings from the metric to the English barometer, the argument is given for every tenth of a millimeter, and the tabular values to three decimals.

Example:

To convert 143.34 mm. to inches.
The table gives

(143 + .3 + .04) mm. = (5.6299 + 0.0118 + 0.0016) inches = 5.6433 inches.

TABLES 11, 12.

Tables 11, 12. *Conversion of barometric readings into standard units of pressure.*

The equation for the pressure in millibars,[1] P_{mb}, corresponding to the barometric height, B, is

$$P_{mb} = B \frac{\Delta g}{1000}$$

where Δ is the density of mercury and g is the standard value of gravity.

[1] The value of the *bar* as here defined is a pressure of 1,000,000 dynes per square centimeter, and is that employed by meteorological services, and recommended by inter-

In order that pressures thus derived shall be expressed in C.G.S. units it is evident that the recognized standard values of the constants of the equation must be employed. It therefore becomes necessary to abandon the values for the density of mercury and for standard gravity heretofore employed, which had the sanction of the International Meteorological Committee, in favor of the more recently determined values that have been adopted by the International Bureau of Weights and Measures.

The value adopted for Δ is 13.5951 grams per cubic centimeter;[1] and for g, 980.665 dynes.[2]

By the use of these constants in the above equation we obtain

$$P_{mb} = 1.333224\ B \text{ (millimeters), and}$$

$$P_{mb} = \frac{1.333224}{0.03937}\ B = 33.86395\ B \text{ (inches)}$$

where B is the height of the barometer in the units indicated, after reduction to standard temperature and the standard value of gravity.

Table 11. *Barometric inches to millibars.*

The argument is for 0.01 inch. From 0.00 to 2.49 inches the tabulated values are given to the nearest hundredth of a millibar, so that by removing the decimal one place to the right the value in millibars of every tenth inch from 0.0 to 24.9 inches may be obtained to the nearest tenth of a millibar. From 25.00 to 31.99 inches the tabular values are given to the nearest tenth of a millibar.

The first part of the table may be used as a table of proportional parts for interpolation.

Example:

To convert 23.86 barometric inches into millibars of pressure.

From Table 11,	23.8 inches	=	806.0 millibars
" " "	.06 inch	=	2.0 "
	23.86 inches	=	808.0 millibars

Table 12. *Barometric millimeters to millibars.*

The argument is for each millimeter from 1 to 799, and the tabular values are given to the nearest tenth of a millibar.

This table may also be used to convert millibars into millimeters of mercury.

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national meteorological and aerological conferences. It is 1,000,000 times greater than that given in the Smithsonian Physical Tables, 6th ed., 1914, p. 346. The smaller value is generally employed by physicists and chemists. See Marvin, Charles F. Nomenclature of the Unit of Absolute Pressure. Monthly Weather Review, 1918, 46:73–75.

[1] Chappuis, Recueil de Constantes Physiques, Soc. Fr. Phys., 1913, p. 139. Leduc, Trav. et Mém., Bur. Int. Poids et Mes., XVI, p. 36, 1917.

[2] Comptes Rendus des Séances, Troisième Conférence Générale, p. 68. Trav. et Mém., Bur. Int. Poids et Mes., XII, 1902.

Example:

To convert 1003.5 millibars into millimeters of mercury. 1003.5 mb. = (1002.6 + 0.9) mb. = (752 + 0.68) mm. = 752.68 mm.

TABLE 13. *Feet into meters.* **TABLE 13.**

From the adopted value of the meter, 39.3700 inches —

1 English foot = 0.3048006 meter.

Table 13 gives the value in meters and thousandths (or millimeters) for every foot from 0 to 99 feet; the value to hundredths of a meter (or centimeters) of every 10 feet from 100 to 4090 feet; and the value to tenths of a meter of every 10 feet from 4000 to 9090 feet. In using the latter part, the first line of the table serves to interpolate for single feet.

Example:

To convert 47 feet 7 inches to meters.	47 feet 7 inches = 47.583 feet.
The table gives	47 feet = 14.326 meters.
By moving the decimal point	0.583 " = 0.178 "
	47.583 feet = 14.504 meters.

TABLE 14. *Meters into feet.* **TABLE 14.**

1 meter = 39.3700 inches = 3.280833 + feet.

From 0 to 509 meters the argument is given for every unit, and the tabular values to two decimals; from 500 to 5090 the argument is given to every 10 meters, and the tabular values to one decimal. The conversion for tenths of a meter is added for convenience of interpolation.

Example:

Convert 4327 meters to feet.

The table gives

(4320 + 7) meters = (14173.2 + 23.0) feet = 14196.2 feet.

TABLE 15. *Miles into kilometers.* **TABLE 15.**

1 mile = 1.609347 kilometers.

The table extends from 0 to 1009 miles with argument to single miles, and from 1000 to 20000 miles for every 1000 miles. The tabular quantities are given to the nearest kilometer.

TABLE 16. *Kilometers into miles.* **TABLE 16.**

1 kilometer = 0.621370 mile.

The table extends to 1009 kilometers with argument to single kilometers, and from 1000 to 20000 kilometers for every 1000 kilometers. Tabular values are given to tenths of a mile.

Example:

Convert 3957 kilometers into miles.

The table gives

(3000 + 957) kilometers = (1864.1 + 594.7) miles = 2458.8 miles.

TABLE 17. *Interconversion of nautical and statute miles.*

The nautical mile as defined by the U.S. Coast and Geodetic Survey (Tables for a polyconic projection of maps. U.S. Coast and Geodetic Survey, Special Publication No. 5, page 4) is "A minute of arc of a great circle of a sphere whose surface equals that of the Clarke representative spheroid of 1866," and the value given is 1853.25 meters, or 6080.20 feet.

TABLE 18. *Continental measures of length with their metric and English equivalents.*

This table gives a miscellaneous list of continental measures of length, alphabetically arranged, with the name of the country to which they belong and their metric and English equivalents.

CONVERSION OF MEASURES OF TIME AND ANGLE.

TABLE 19. *Arc into time.*

$$1^\circ = 4^m;\ 1' = 4^s;\ 1'' = \frac{1}{15}^s = 0^s.067.$$

Example:

Change $124^\circ\ 15'\ 24''.7$ into time.

From the table,

124°	=	8^h	16^m	0^s
$15'$	=		1	0
$24''$	=			1.600
$0''.7$	=			.047
		8^h	17^m	$1^s.647$

TABLE 20. *Time into arc.*

$$1^h = 15^\circ;\ 1^m = 15';\ 1^s = 15''.$$

Example:

Change $8^h\ 17^m\ 1^s.647$ into arc.

From the table,	8^h	=	120°		
	17^m	=	4	$15'$	
	1^s	=			$15''$
	0.64	=			9.60
By moving the decimal point,	.007	=			0.10
			124°	$15'$	$24''.7$

TABLE 21. *Days into decimals of a year and angle.*

The table gives for the beginning of each day the corresponding decimal of the year to five places. Thus, at the epoch represented by the beginning of the 15th day, the decimal of the year that has elapsed since January 1.0 is computed from the fraction $\frac{14}{365.25}$. The corresponding value in angle obtained by multiplying this fraction by 360°, is given to the nearest minute.

Two additional columns serve to enter the table with the day of the month either of the common or the bissextile year as the argument, and may be used also for converting the day of the month to the day of the year, and *vice versa*.

Example:

To find the number of days and the decimal of a year between February 12 and August 27 in a bissextile year.

Aug. 27: Day of year	= 240; decimal of a year	= 0.65435
Feb. 12: " " "	= 43; " " "	= 0.11499
Interval in days	= 197; interval in decimal of a year	= 0.53936

The decimal of the year corresponding to the interval 197 days may also be taken from the table by entering with the argument 198.

TABLE 22. *Hours, minutes and seconds into decimals of a day.* **TABLE 22.**

The tabular values are given to six decimals.

Example:

Convert $5^h\ 24^m\ 23^s.4$ to the decimal of a day:

$$\begin{aligned} 5^h &= 0^d.208333 \\ 24^m &= 016667 \\ 23^s &= 266 \\ \text{By interpolation, or by moving the decimal for } 4^s \quad 0.4 &= \underline{\qquad 5} \\ & 0^d.225271 \end{aligned}$$

TABLE 23. *Decimals of a day into hours, minutes and seconds.* **TABLE 23.**

Example:

Convert $0^d.225271$ to hours, minutes and seconds:

$$\begin{aligned} 0.22 \text{ day} &= 4^h\ 48^m + 28^m\ 48^s = 5^h\ 16^m\ 48^s \\ 0.0052 \text{ day} &= 7^m\ 12^s + 17^s.28 = \ 7\ \ 29.28 \\ 0.000071 \text{ day} &= 6^s.05 + 0.09 = \underline{\ 6.14} \\ & \ 5^h\ 24^m\ 23^s.4 \end{aligned}$$

TABLE 24. *Minutes and seconds into decimals of an hour.* **TABLE 24**

The tabular values are given to six decimals.

Example:

Convert $34^m\ 28^s.7$ to decimals of an hour.

$$\begin{aligned} 34^m &= 0^h.566667 \\ 28^s &= 7778 \\ 0^s.7 &= \underline{\quad 194} \\ & 0.574639 \end{aligned}$$

Table 25. *Local mean time at apparent noon.*

This table gives the local mean time[1] that should be shown by a clock when the center of the sun crosses the meridian, on the 1st, 8th, 16th, and 24th days of each month. The table is useful in correcting a clock by means of a sundial or noon mark.

Example:

To find the correct local mean time when the sun crosses the meridian on December 15, 1891.

The table gives for December 16, $11^h\ 56^m$. By interpolating, it is seen that the change to December 15 would be only one-half minute; the correct clock time is therefore 4 minutes before 12 o'clock noon.

Table 26. *Sidereal time into mean solar time.*

Table 27. *Mean solar time into sidereal time.*

According to Newcomb, the length of the tropical year is 365.24220 mean solar days,[2] whence

$$365.24220 \text{ solar days} = 366.24220 \text{ sidereal days.}$$

Any interval of mean time may therefore be changed into sidereal time by increasing it by its $\frac{1}{365.24220}$ part, and any interval of sidereal time may be changed into mean time by diminishing it by its $\frac{1}{366.24220}$ part.

Table 26 gives the quantities to be subtracted from the hours, minutes and seconds of a sidereal interval to obtain the corresponding mean time interval, and Table 27 gives the quantities to be added to the hours, minutes and seconds of a mean time interval to obtain the corresponding sidereal interval. The correction for seconds is sensibly the same for either a sidereal or a mean time interval and is therefore given but once, thus forming a part of each table.

Examples:

Change $14^h\ 25^m\ 36^s.2$ sidereal time into mean solar time.

Given sidereal time			14^h	25^m	$36^s.2$
Correction for 14^h	=	$-\ 2^m\ 17^s.61$			
25^m	=	$-\ \ 4.10$			
$36^s.2$	=	$-\ \ .10$			
		$-\ 2\ \ 21.81$		-2	21.8
Corresponding mean time	=		14	23	14.4

[1] Derived from the equation of time for Washington apparent noon for the year 1899. See the American Ephemeris and Nautical Almanac, 1899, pages 377–84.

[2] The length of the tropical year is not absolutely constant. The value here given is for the year 1900. Its decrease in 100 years is about 0.5s. (See the American Ephemeris and Nautical Almanac 1918, page xvi.)

2. Change $13^h\ 37^m\ 22^s.7$ mean solar time into sidereal time.

Given mean time	=			13^h	37^m	$22^s.7$
Correction for 13^h	=	$+\ 2^m$	$8^s.13$			
37^m	=	+	6.08			
$22^s.7$	=	+	0.06			
		+ 2	14.27		+ 2	14.3
Corresponding sidereal time	=			13	39	37.0

CONVERSION OF MEASURES OF WEIGHT.

TABLE 28.

Table 28. *Conversion of avoirdupois pounds and ounces into kilograms.*

The comparisons of July, 1893, made by the International Bureau of Weights and Measures between the Imperial standard pound and the "kilogram prototype" resulted in the relation:

1 pound avoirdupois = 453.592 427 7 grams.

For the conversion of pounds, Table 28 gives the argument for every tenth of a pound up to 9.9, and the tabular conversion values to ten-thousandths of a kilogram.

For the conversion of ounces, the argument is given for every tenth of an ounce up to 15.9, and the tabular values to ten-thousandths of a kilogram.

TABLE 29.

Table 29. *Conversion of kilograms into avoirdupois pounds and ounces.*

From the above relation between the pound and the kilogram,

1 kilogram = 2.204622 avoirdupois pounds.
= 35.274 avoirdupois ounces.

The table gives the value to thousandths of a pound of every tenth of a kilogram up to 9.9; the values of tenths of a kilogram in ounces to four decimals; and the values of hundredths of a kilogram in pounds and ounces to three and two decimals respectively.

TABLES 30, 31.

Table 30. *Conversion of grains into grams.*

Table 31. *Conversion of grams into grains.*

From the above relation between the pound and the kilogram,

1 gram = 15.432356 grains.
1 grain = 0.06479892 gram.

Table 30 gives to ten-thousandths of a gram the value of every grain from 1 to 99, and also the conversion of tenths and hundredths of a grain for convenience in interpolating.

Table 31 gives to hundredths of a grain the value of every tenth of a gram from 0.1 to 9.9, and the value of every gram from 1 to 99. The values of hundredths and thousandths of a gram are added as an aid to interpolation.

WIND TABLES.

CONVERSION OF VELOCITIES.

Table 32. *Synoptic conversion of velocities.*

This table,[1] contained on a single page, converts miles per hour into meters per second, feet per second and kilometers per hour. The argument, miles per hour, is given for every half unit from 0 to 78. Tabular values are given to one decimal. For the rapid interconversion of velocities, when extreme precision is not required, this table has proved of marked convenience and utility.

Table 33. *Conversion of miles per hour into feet per second.*

The argument is given for every unit up to 149 and the tabular values are given to one decimal.

Table 34. *Conversion of feet per second into miles per hour.*

The argument is given for every unit up to 199 and the tabular values are given to one decimal.

Table 35. *Conversion of meters per second into miles per hour.*

The argument is given for every tenth of a meter per second up to 60 meters per second, and the tabular values are given to one decimal.

Table 36. *Conversion of miles per hour into meters per second.*

The argument is given for every unit up to 149, and the tabular values are given to two decimals.

Table 37. *Conversion of meters per second into kilometers per hour.*

The argument is given for every tenth of a meter per second up to 60 meters per second, and the tabular values are given to one decimal.

Table 38. *Conversion of kilometers per hour into meters per second.*

The argument is given for every unit up to 200, and the tabular values are given to two decimals.

Table 39. *Scale of Velocity equivalents of the so-called Beaufort scale of wind.*

The personal observation of the estimated force of the wind on an arbitrary scale is a method that belongs to the simplest meteorological

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[1] From *Hand-Book of Meteorological Tables.* By H. A. Hazen. Washington, 1888.

records and is widely practiced. Although anemometers are used at meteorological observatories, the majority of observers are still dependent upon estimates based largely upon their own judgment, and so reliable can such estimates be made that for many purposes they abundantly answer the needs of meteorology as well as of climatology.

A great variety of such arbitrary scales have been adopted by different observers, but the one that has come into the most general use and received the greatest definiteness of application is the duodecimal scale introduced into the British navy by Admiral Beaufort about 1800.

Table 39 is taken from the Observer's Handbook of the Meteorological Office, London, edition of 1917. The velocity equivalents in meters per second and miles per hour are based on extensive observational data collected by Dr. G. C. Simpson and first published by the Meteorological Office in 1906. Several other sets of equivalents have been published in different countries. For a history of this subject see Rept. 10th Meeting International Meteorological Committee, Rome, 1913, Appendix VII. (London, 1914.)

In the *Quarterly Journal of the Royal Meteorological Society*, volume xxx, No. 132, October, 1904, Prof. A. Lawrence Rotch has described an instrument for obtaining the true direction and velocity of the wind at sea aboard a moving vessel. If a line $A\ B$ represents the wind due to the motion of a steamer in an opposite direction, and $A\ C$ the direction of the wind relative to the vessel as shown by the drift of its smoke, then, by measuring the angle $D\ B\ A$ that the true wind makes with the vessel — which is easily done by watching the wave crests as they approach it — we obtain the third side, $B\ C$, of the triangle. This represents, in direction and also in length, on the scale used in setting off the speed of the ship, the true direction of the wind relative to the vessel and also its true velocity. The method fails when the wind direction coincides with the ship's course and becomes inaccurate when the angle between them is small.

CALCULATION OF THE MEAN DIRECTION OF THE WIND BY LAMBERT'S FORMULA.

Lambert's formula for the eight principal points of the compass is

$$\tan \alpha = \frac{E - W + (NE + SE - NW - SW) \cos 45^\circ}{N - S + (NE + NW - SE - SW) \cos 45^\circ}.$$

α is the angle of the resultant wind direction with the meridian.
E, NE, N, etc., represent the wind movement from the corresponding directions East, Northeast, North, etc. In practice, instead of taking the total wind movement, it is often considered sufficient to take as proportional thereto the number of times the wind has blown from each direction,

which is equivalent to considering the wind to have the same mean velocity for all directions.

If directions are observed to sixteen points, half the number belonging to each extra point should be added to the two octant points between which it lies; for example, $NNE = 6$ should be separated into $N = 3$ and $NE = 3$; $ESE = 4$, into $E = 2$ and $SE = 2$. The result will be approximately identical with that obtained by using the complete formula for sixteen points.

Table 40. *Multiples of cos* $45°$; *form for computing the numerator and denominator.*

Table 41. *Values of the mean direction* (α) *or its complement* ($90° - \alpha$).

Table 40 gives products of cos $45°$ by numbers up to 209, together with a form for the computation of the numerator and denominator, illustrated by an example. The quadrant in which α lies is determined by the following rule:

When the numerator and denominator are positive, α lies between N and E.

When the numerator is positive and the denominator negative, α lies between S and E.

When the numerator and denominator are negative, α lies between S and W.

When the numerator is negative and the denominator positive, α lies between N and W.

Table 41[1] combines the use of a division table and a table of natural tangents. It enables the computer, with the numerator and denominator of Lambert's formula (computed from Table 40) as arguments, to take out directly the mean wind direction α or its complement.

The top argument consists of every fifth number from 10 to 200.

The side argument is given for every unit from 1 to 50 and for every two units from 50 to 150. Tabular values are given to the nearest whole degree.

Rule for using the table:

Enter the table with the larger number (either numerator or denominator) as the top argument.

If the denominator be larger than the numerator, the table gives α.

If the denominator be smaller than the numerator, the table gives $90° - \alpha$.

α is measured from the meridian in the quadrant determined by the rule given with Table 40.

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[1] From *Hand-book of Meteorological Tables.* By H. A. Hazen. Washington, 1888. A corrected copy of the table was kindly furnished by the author.

Example:

$$\tan \alpha = \frac{-43}{-27}.$$

Table 41 gives $\quad 90^\circ - \alpha = 32^\circ$

$$\alpha = S\ 58^\circ\ W.$$

NOTE. — If the numerator and denominator both exceed 150 or if either exceeds 200, the fraction must be divided by some number which will bring them within the limits of the table. The larger the values, provided they are within these limits, the easier and more accurate will be the computation. For example, let $\tan \alpha = \frac{-18}{14}$. The top argument is not given for 18, but if we multiply by 5 or 10 and obtain $\frac{-90}{70}$ or $\frac{-180}{140}$, the table gives, without interpolation, $90^\circ - \alpha = 38^\circ$ and $\alpha = N\ 52^\circ\ W.$

GRADIENT WINDS.

When the motions of the atmosphere attain a state of complete equilibrium of flow under definite systems of pressure gradients, the winds blow across the isobars at small angles of inclination depending upon the retarding effects of friction. At the surface of the earth friction is considerable and the angle across the isobars is often great. In the free air, however, the friction is small, and for some purposes may be disregarded entirely. Under an assumption of complete equilibrium of motion and frictionless flow the winds will blow exactly parallel to the isobars, — that is, perpendicular to the gradient which produces and sustains the motion. Such winds are called gradient winds. The anomalous condition of flow of terrestrial winds perpendicular to the moving force is the result of the modifications of atmospheric motions due to the deflective influence of the earth's rotation, and to that other influence due to the inertia reaction of matter when it is constrained to move in a curved path, and commonly called centrifugal force. The equations for gradient wind motions have long been known to meteorologists from the work of Ferrel and others, and may be written in the following form:

For Cyclones

$$V = r\left[\sqrt{\omega^2 \sin^2 \phi + \frac{\Delta P}{\rho r}} - \omega \sin \phi\right] \qquad (1)$$

For Anticyclones

$$V = r\left[\omega \sin \phi - \sqrt{\omega^2 \sin^2 \phi - \frac{\Delta P}{\rho r}}\right] \qquad (2)$$

In C. G. S. Units, V = velocity of the gradient wind in centimeters per second; r = radius of curvature of isobars in centimeters; ΔP = pressure gradient in dynes per square centimeter per centimeter; ρ = density of air in grams per cubic centimeter; ω = angular velocity of the earth's rotation

per second $= \dfrac{2\pi}{86164}$, and ϕ = latitude. In the Northern Hemisphere the winds gyrate counterclockwise in cyclones and clockwise in anticyclones. These gyrations are in the reversed direction each to each in the Southern Hemisphere.

In equation (2) the values of V are imaginary for values of $\dfrac{\Delta P}{\rho r}$ greater than $\omega^2 \sin^2 \phi$. The equality $\dfrac{\Delta P}{\rho r} = \omega^2 \sin^2 \phi$, or $r = \dfrac{\Delta P}{\rho \omega^2 \sin^2 \phi}$ defines and fixes an isobar with minimum curvature in anticyclones. Winds cannot flow parallel to the isobars within this critical isobar. For this isobar the gradient wind has its maximum value $V_c = \dfrac{\Delta P}{\rho\omega \sin \phi}$. For the same gradient and for an isobar with the same curvature in a cyclone the gradient velocity is $V_l = V_c(\sqrt{2} - 1) = 0.414\ V_c$.

When the isobars are parallel straight lines, a condition very often closely realized in nature, $r = \infty$ and the gradient winds have the value given by either (1) or (2) after squaring, namely,

$$V_{r=\infty} = V_s = \frac{\Delta P}{2\,\rho\omega \sin \phi} = \frac{1}{2} V_c.$$

For practical units equation (1) becomes

Units of pressure.

$$V = R \begin{bmatrix} \sqrt{.0053173 \sin^2 \phi + \dfrac{1}{10\,R\rho d}} - .07292 \sin \phi \\ \sqrt{.0053173 \sin^2 \phi + \dfrac{.13333}{R\rho d}} - .07292 \sin \phi \\ \sqrt{.068914 \sin^2 \phi + \dfrac{1.6946}{R\rho d}} - .26252 \sin \phi \end{bmatrix} \begin{matrix} \text{(I) (Millibars)} \\ \text{(II) (Millimeters)} \\ \text{(III) (Inches)} \end{matrix}$$

V = velocities in meters per second in (I) and (II) and in miles per hour in (III).

R = radius of curvature of isobar (wind path) in kilometers in (I) and (II) and in miles in (III).

The gradient is to be deduced from isobars drawn for pressure intervals of 1 millibar in (I), 1 millimeter in (II) and $\frac{1}{10}$ inch in (III); d, is the perpendicular distance between isobars (as above defined) in kilometers in (I) and (II), and in miles in (III).

ρ = density of air = grams per cubic centimeter in all cases.

Also

$$V_c = \left[\begin{array}{ll} \dfrac{1.3713}{\rho d \sin\phi} & \text{(IV)} \\ \dfrac{1.8284}{\rho d \sin\phi} & \text{(V)} \\ \dfrac{6.4552}{\rho d \sin\phi} & \text{(VI)} \end{array}\right. \quad \text{and } R_c = \left[\begin{array}{lll} & & \text{Units of pressure.} \\ \dfrac{18.806}{\rho d \sin^2\phi} & \text{(VII)} & \text{(Millibars)} \\ \dfrac{25.073}{\rho d \sin^2\phi} & \text{(VIII)} & \text{(Millimeters)} \\ \dfrac{24.590}{\rho d \sin^2\phi} & \text{(IX)} & \text{(Inches)} \end{array}\right.$$

Radius of critical curvature and velocities of gradient winds for frictionless motion in Highs and Lows.

TABLE 42. *English Measures.* **TABLES 42, 43.**

TABLE 43. *Metric Measures.*

These tables give the radius of curvature of the critical isobar in anticyclones, computed from the equation

$$R_c = \frac{\Delta P}{\rho\omega^2 \sin^2\phi};$$

the velocity of the wind on this isobar, computed from the equation

$$V_c = \frac{\Delta P}{\rho\omega \sin\phi};$$

the velocity of the wind on a straight isobar, computed from the equation

$$V_s = \frac{\Delta P}{2\rho\omega\sin\phi} = \frac{1}{2} V_c; \text{ and}$$

the velocity of the wind in a cyclone having the same gradient as the anticyclone, and on an isobar having a radius of curvature equal to R_c, computed from the equation

$$V_1 = V_c(\sqrt{2} - 1) = 0.414\ V_c$$

Table 42, English measures, gives values of R_c, in miles, and of V_c High, V_s, and V Low, in miles per hour. The side argument is the latitude for 10°, and at 5° intervals from 20° to 90°, inclusive. The top argument, d, is the perpendicular distance in miles between isobars drawn for pressure intervals of $\frac{1}{10}$ inch. For values of d one tenth as great as given in the heading of the table the values of R_c, V_c High, V_s, and V Low are increased tenfold.

Table 43, metric measures, gives values of R_c in kilometers, and of V_c High, V_s, and V Low, in meters per second. The side argument is the same as in Table 42. The top argument, d, is the perpendicular distance in kilometers between isobars drawn for pressure intervals of 1 millimeter. For values of d one tenth as great as given in the heading of the table the values of R_c, V_c High, V_s, and V Low are increased tenfold.

REDUCTION OF TEMPERATURE TO SEA LEVEL.

Table 44. *English Measures.*

Table 45. *Metric Measures.*

These tables give for different altitudes and for different uniform rates of decrease of temperature with altitude, the amount in hundredths of a degree Fahrenheit and Centigrade, which must be added to observed temperatures in order to reduce them to sea level.

The rate of decrease of temperature with altitude varies from one region to another, and in the same region varies according to the season and the meteorological conditions; being in general greater in warm latitudes than in cold ones, greater in summer than in winter, and greater in areas of falling pressure than in areas of rising pressure. For continental plateau regions, the reduction often becomes fictitious or illusory. The use of the tables therefore requires experience and judgment in selecting the rate of decrease of temperature to be used. Much experimental work is now in progress with kites and balloons to determine average vertical gradients. It must be remembered that the tables here given are not tables giving the data as recently determined for various elevations.

The tables are given in order to facilitate the reduction of temperature either upward or downward in special investigations, but the reduction is not ordinarily applied to meteorological observations.

The tables, 44 and 45, are computed for rates of temperature change ranging from 1° Fahrenheit in 200 feet to 1° Fahrenheit in 900 feet, and from 1° Centigrade in 100 meters to 1° Centigrade in 500 meters; and for altitudes up to 5000 feet and 3000 meters respectively.

Example, Table 44.

Observed temperature at an elevation of 2,500 feet,	52°.5 *F.*
Reduction to sea level for an assumed decrease in temperature of 1° *F.* for every 300 feet,	+ 8°.3
Temperature reduced to sea level,	60°.8 *F.*

Example, Table 45.

Observed temperature at an elevation of 500 meters,	12°.5 *C.*
Reduction to sea level for an assumed decrease in temperature of 1° *C.* for every 200 meters,	+ 2°.5
Temperature reduced to sea level,	15°.0 *C.*

BAROMETRICAL TABLES.

REDUCTION TO A STANDARD TEMPERATURE OF OBSERVATIONS MADE WITH MERCURIAL BAROMETERS HAVING BRASS SCALES.

The indicated height of the mercurial column in a barometer varies not only with changes of atmospheric pressure, but also with variations of the temperature of the mercury and of the scale. It is evident therefore that if

the height of the barometric column is to be a true relative measure of atmospheric pressure, the observed readings must be reduced to the values they would have if the mercury and scale were maintained at a constant standard temperature. This reduction is known as the reduction for temperature, and combines both the correction for the expansion of the mercury and that for the expansion of the scale, on the assumption that the attached thermometer gives the temperature both of the mercury and of the scale.

The freezing point is universally adopted as the standard temperature of the mercury, to which all readings are to be reduced. The temperature to which the scale is reduced is the normal or standard temperature of the adopted standard of length. For English scales, which depend upon the English yard, this is 62° Fahrenheit. For metric scales, which depend upon the meter, it is 0° Centigrade. As thus reduced, observations made with English and metric barometers become perfectly comparable when converted by the ordinary tables of linear conversion, viz: inches to millimeters and millimeters to inches (see Tables 9, 10), for these conversions refer to the meter at 0° Centigrade and the English yard at 62° Fahrenheit.

Prof. C. F. Marvin in the Monthly Weather Review for July, 1898, has pointed out the necessity of caution in conversion of metric and English barometer readings:

Example:

Attached thermometer,	25°.4 *C.*
Barometer reading,	762.15 mm.

If the temperature is converted to Fahrenheit = 77°.7 and the reading to 30.006 in., the temperature correction according to table 47 would be —0.133 inch and the reduced reading 29.873. *This would be erroneous.* The correct conversion is found by taking the correction corresponding to 25°.4 *C.* and 762 mm., *i.e.*, — 3.15 mm., which gives a corrected reading of 759 mm., and converted into inches gives 29.882 which is the correct result.

Professor Marvin further remarks that circumstances sometimes arise in which a Centigrade thermometer may be used to determine the temperature of an English barometer, or a Fahrenheit attached thermometer may be used with a metric scale. In all such cases the temperature must be brought into the same system of units as the observed scale reading before corrections can be applied, and the observed reading must then be corrected for temperature before any conversion can be made.

With aneroid barometers corrections for temperature and instrumental error must be determined for each instrument.

The general formula for reducing mercurial barometers with brass scales to the standard temperature is

$$C = -B\frac{m(t-T) - l(t-\theta)}{1 + m(t-T)},$$

in which C = Correction for temperature.
B = Observed height of the barometric column.
t = Temperature of the attached thermometer.
T = Standard temperature of the mercury.
m = Coefficient of expansion of mercury.
l = Coefficient of linear expansion of brass.
θ = Standard temperature of the scale.

The accepted determination of the coefficient of expansion of mercury is that given by Broch's reduction of Regnault's experiments, viz:

$$m \text{ (for } 1° \ C.) = 10^{-9} (181792 + 0.175t + 0.035116t^2).$$

As a sufficiently accurate approximation, the intermediate value

$$m = 0.0001818$$

has been adopted uniformly for all temperatures in conformity with the usage of the *International Meteorological Tables.*

Various specimens of brass scales made of alloys of different composition show differences in their coefficients of expansion amounting to eight and sometimes ten per cent. of the total amount. The *Smithsonian Tables* prepared by Prof. Guyot were computed with the average value l (for $1°$ $C.$) = 0.0000188; for the sake of uniformity with the *International Meteorological Tables*, the value

$$l = 0.0000184$$

has been used in the present volume. For any individual scale, either value may easily be in error by four per cent.

A small portion of the tables has been independently computed, but the larger part of the values have been copied from the *International Meteorological Tables*, one inaccuracy having been found and corrected.

Table 46. *Reduction of the barometer to standard temperature — English measures.*

For the English barometer the formula for reducing observed readings to a standard temperature becomes

$$C = -B \frac{m (t - 32°) - l (t - 62°)}{1 + m (t - 32°)}$$

in which B = Observed height of the barometer in English inches.
t = Temperature of attached thermometer in degrees Fahrenheit.

$$m = 0.0001818 \times \frac{5}{9} = 0.000101$$

$$l = 0.0000184 \times \frac{5}{9} = 0.0000102$$

The combined reduction of the mercury to the freezing point and of the scale to 62° Fahrenheit brings the point of no correction to approximately 28°.5 Fahrenheit. For temperatures above 28°.5 Fahrenheit, the correction is subtractive, and for temperatures below 28°.5 Fahrenheit, the correction is additive, as indicated by the signs (+) and (−) inserted throughout the table.

The table gives the corrections for every half degree Fahrenheit from 0° to 100°. The limits of pressure are 19 and 31.6 inches, the corrections being computed for every half inch from 19 to 24 inches, and for every two-tenths of an inch from 24 to 31.6 inches.

Example:

Observed height of barometer	=	29.143
Attached thermometer, 54°.5 *F.*		
Reduction for temperature	=	− 0.068
Barometric reading corrected for temperature	=	29.075

TABLE 47.

TABLE 47. *Reduction of the barometer to standard temperature — Metric measures.*

For the metric barometer the formula for reducing observed readings to the standard temperature, 0° *C.*, becomes

$$C = -B\frac{(m-l)t}{1+mt}$$

in which C and B are expressed in millimeters and t in Centigrade degrees.

$$m = 0.0001818; \quad l = 0.0000184.$$

In the table, the limits adopted for the pressure are 440 and 795 millimeters, the intervals being 10 millimeters between 440 and 600 millimeters, and 5 millimeters between 600 and 795 millimeters.

The limits adopted for the temperature are 0° and + 35°.8, the intervals being 0°.5 and 1°.0 from 440 to 560 millimeters, and 0°.2 from 560 to 795 millimeters.

For temperatures above 0° Centigrade the correction is *negative*, and hence is to be subtracted from the observed readings.

For temperatures below 0° Centigrade the correction is *positive*, and from 0° *C.* down to − 20° *C.* the numerical values thereof, for ordinary barometric work, do not materially differ from the values for the corresponding temperatures above 0° *C.* Thus the correction for − 9° *C.* is *numerically* the same as for + 9° *C.* and is taken from the table. In physical work of extreme precision, the numerical values given for positive temperatures may be used for temperatures below 0° *C.* by applying to them the following corrections:

Corrections to be applied to the tabular values of Table 47 in order to use them when the temperature of the attached thermometer is below 0° Centigrade.

Temperature.	PRESSURE IN MILLIMETERS.							
	450	500	550	600	650	700	750	800
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
− 1°	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
− 9	.00	.00	.00	.00	.00	.00	.00	.00
−10	0.00	0.00	0.00	0.00	0.00	+0.01	+0.01	+0.01
11	.00	.00	.00	.00	+0.01	.01	.01	.01
12	.00	.00	.00	+0.01	.01	.01	.01	.01
13	.00	.00	+0.01	.01	.01	.01	.01	.01
−14	.00	+0.01	.01	.01	.01	.01	.01	.01
−15	+0.01	+0.01	+0.01	+0.01	+0.01	+0.01	+0.01	+0.01
16	.01	.01	.01	.01	.01	.01	.01	.01
17	.01	.01	.01	.01	.01	.01	.01	.02
18	.01	.01	.01	.01	.01	.01	.01	.02
−19	.01	.01	.01	.01	.01	.01	.02	.02
−20	+0.01	+0.01	+0.01	+0.01	+0.01	+0.02	+0.02	+0.02
21	.01	.01	.01	.02	.02	.02	.02	.02
22	.01	.01	.02	.02	.02	.02	.02	.02
23	.01	.02	.02	.02	.02	.02	.02	.02
−24	.01	.02	.02	.02	.02	.02	.02	.03

Example:

Observed height of barometer, 763.17$^{mm.}$: Temperature of the attached thermometer, − 12° *C.*

Numerical value of the reduction for + 12° *C.*	=	1.50
Correction for temperature below 0° *C.*	= +	0.01
Reduction for − 12° *C.*	= +	1.51
Observed height of barometer	=	763.17
Barometer corrected for temperature	=	764.68

REDUCTION OF THE MERCURIAL BAROMETER TO STANDARD GRAVITY.

TABLES 48, 49, 50.

The mercurial barometer does not directly measure the atmospheric pressure. The latter is proportional to the weight of the mercurial column, and also to its height after certain corrections have been applied. Since the height of the barometric column is easily measured, by common consent the pressures are expressed in terms of this corrected height.

The observed height of the barometer changes with the temperature of the mercury as already shown, and also with the variations in the value of gravity, as well as with the pressure. Therefore, to obtain a height that shall be a true relative measure of the atmospheric pressure, the observed

height of the mercurial column must not only be reduced to what its height would be if at a standard temperature, but also to what it would be at a standard value of gravity.

As stated on page xviii, the standard value of gravity adopted is 980.665 dynes. At the time of its adoption this value was assumed to apply for "latitude 45° and sea-level" on the basis of the absolute determination of g at the International Bureau by Defforges, 1887–1890 (Procés-Verbaux, Comité Inter. d. Poids et Mesures, 1887, pp. 27–28, 86; 1891, p. 135).

More recent determinations,[1] based upon numerous measurements in all parts of the world, and assuming a certain ideal figure for the earth, give for the mean value of g at latitude 45° and sea level the value 980.621 dynes. This differs from the standard value by 0.044 dyne. Departures of this magnitude from the mean sea-level gravity of a given latitude are frequently encountered, and in some cases surpassed. They are attributed to topography and isostatic compensation, and to gravity anomalies. For example, according to Bowie,[2] at Pikes Peak, Colo., the correction for topography and compensation is + 0.187 dyne, while the gravity anomaly[3] is + 0.021 dyne, giving a total gravity departure of + 0.208 dyne. Also, at Seattle, Wash., from the mean of measurements at two stations, the correction for topography and compensation is − 0.19 dyne[4] and the gravity anomaly is − 0.093 dyne,[5] giving a total gravity departure of − 0.112 dyne. The gravity departure at Pikes Peak is sufficient to cause the barometer to read 0.004 inch or 0.10 mm. low, while the departure at Seattle is sufficient to cause the barometer to read 0.003 inch or 0.09 mm. high, as compared with what the readings would have been with gravity at normal intensity for the latitudes of the respective stations.

From the foregoing it is evident that the value of local gravity, g_l, at the observing station must be determined before the barometer reading can be accurately reduced to standard gravity. In many cases, and especially at sea, it is not practicable to measure g_l. In the United States its value may frequently be determined with sufficient accuracy in the following manner:

(1) Compute g_ϕ, mean gravity at sea level for the latitude of the station, from the equation.[6]

$$g_\phi = 978.039\,(1 + 0.005294 \sin^2\phi - 0.000007 \sin^2 2\phi),$$
$$= 980.621\,(1 - 0.002640 \cos 2\phi + 0.000007 \cos^2 2\phi)$$

(2) Correct g_ϕ for altitude by the equation[7]

$$c \text{ (dynes)} = - 0.0003086\, h \text{ (meters), or}$$
$$c \text{ (dynes)} = - 0.000094\, h \text{ (feet),}$$

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[1] Investigations of gravity and isostasy, by William Bowie. U.S. Coast and Geodetic Survey, Special Publication No. 40, 1917, p. 134.

[2] Op. cit. p. 50. [3] Op. cit. p. 59. [4] Op. cit. p. 50. [5] Op. cit. p. 59.

[6] Bowie, op. cit. p. 134. [7] Bowie, op. cit. p. 93.

where h is the altitude of the station above sea level.

(3) Correct g_ϕ for gravity anomaly.[1]

(4) Finally, g_ϕ is to be corrected for topography and isostatic compensation.[2]

Example:

To determine the value of local gravity g_l, at the Weather Bureau Office, Atlanta, Ga., latitude 33° 45′ N., longitude 84° 23′ W., height of barometer above sea level, 1218 feet.

From Table 83, mean sea level gravity for latitude 33° 45′	=	979.631 dynes.	
Correction for height of barometer (-0.000094×1218)	= −	0.114	"
Correction for gravity anomaly,	= −	0.023	"
Correction for topography and compensation	= +	0.014	"
Local gravity at Weather Bureau Office, Atlanta, Ga.	=	979.508 dynes.	

Having determined g_l, the reduction of barometer readings to standard gravity is easily and accurately accomplished by multiplying by the ratio g_l/g, or by applying a correction to the barometer reading, otherwise corrected, derived from the expression $\frac{(g_l - g)}{g} B$. With $g_l < g$ the correction is to be subtracted; with $g_l > g$ the correction is to be added. In general, sufficient accuracy will be attained by computing the gravity correction for a station once for all from the equation $C = B_n \frac{(g_l - g)}{g}$, in which B_n is the normal station barometer pressure, and C is expressed in the same units as B_n.

Table 48 gives corrections to reduce barometer readings to standard gravity. The top argument is the barometer reading. The side argument is the difference, $g_l - g$, for each tenth of a dyne up to 4.0 dynes. The relation is a linear function of both $g_l - g$ and B, and for barometer readings 10 or 100 times greater than those given in the argument the correction may be obtained by removing the decimal point in the tabulated values one or two places, respectively, to the right. The correction obtained will be expressed in the same units as the barometer reading to be corrected.

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[1] In most cases the gravity anomaly may be obtained from Bowie's paper, op. cit., figure 11.

[2] In some cases this correction may be obtained from Bowie's paper, op. cit., pp. 50–52, but in many cases, and especially in mountainous districts, it must be separately computed for each station.

Example 1.

The barometer reading corrected for temperature is 29.647 inches, and the local value of gravity is 978.08. The difference, $g_l - g$, $= -2.585$. From the table,

the correction for a barometer reading of 20 inches	$= -0.0527$ in.
the correction for a barometer reading of 9 inches	$= -0.0237$ in.
the correction for a barometer reading of 0.65 inches	$= -0.0017$ in.
Correction for a barometer reading of 29.65 inches	$= -0.078$ in.
Corrected barometer reading = 29.647 in. − 0.078 in.	= 29.569 in.

Example 2.

The barometer reading reduced to 0° *C.* is 637.42 mm., and the local value of gravity is 981.51. The difference, $g_l - g = +0.845$. From the table,

the correction for a barometer reading of 600 mm.	$= +0.517$ mm.
the correction for a barometer reading of 30 mm.	$= +0.026$ mm.
the correction for a barometer reading of 7 mm.	$= +0.006$ mm.
Correction for a barometer reading of 637.4 mm.	$= +0.55$ mm.
Corrected barometer reading = 637.42 + 0.55	$= +637.97$ mm.

In the case of barometer readings made at sea, and also at some land stations, it is not practicable to determine local gravity with greater accuracy than it can be computed from the equations for variation with latitude and altitude given above. The reduction to standard gravity, accordingly, consists of two parts — a correction for altitude, and a correction from the computed sea-level gravity for the latitude of the station to standard gravity. The first part of the correction, or the correction for altitude, may be computed once for all from the expression $c = -0.0003086\ h\ B_n$ (metric measures), or $c = -0.000094\ h\ B_n$ (English measures), and is usually combined with the reduction of the barometer to sea level or to some other reference plane. The second part has heretofore consisted of a correction for the difference between the mean value of gravity for the latitude of the station and for latitude 45°; and, in accordance with the equation given above, it may be derived from the expression

$$(-0.002640 \cos 2\phi + 0.000007 \cos^2 2\phi)\ B$$

where ϕ is the latitude of the station, and B is the barometer reading. The value of the ratio $\frac{g_{45^\circ} - g}{g} = \frac{980.621 - 980.665}{980.665} = -0.000045$. Therefore, the expression for the gravity correction becomes

$$(-0.00264 \cos 2\phi + 0.000007 \cos^2 2\phi - 0.000045)\ B$$

Table 49 (*English measures*) gives the corrections in thousandths of an inch for every degree of latitude and for each inch of barometric pres-

sure from 19 to 30 inches, to reduce barometer readings to standard gravity, computed from the equation

$$C = (-0.00264 \cos 2\phi + 0.000007 \cos^2 2\phi - 0.000045)\,B$$

Table 50 (*metric measures*) gives the same corrections in hundredths of a millimeter for each 20 millimeters barometric pressure from 520 to 780 millimeters.

Example:

Barometric reading (corrected for temperature) at latitude 63° 55′,	= 27.434 inches
Correction to standard gravity, Table 49,	= 0.043 inches
Barometer reduced to standard gravity,	= 27.477 inches

The adoption of this new value for standard gravity may require a slight correction to old barometric records in order to make the entire series of readings homogeneous. The amount of this correction will be the difference between the gravity correction computed by these new tables and by the old tables.

Example:

Seattle, Wash., Lat. 47° 38′ N. Long. 122° 20′ W., height of barometer above sea level 125 feet, normal station barometer 29.89 inches.

g_ϕ (Table 83)	=	980.859	dynes.
Correction for height (-0.000094×125)	= −	.012	"
Correction for topography and compensation	= −	.019	"
Correction for gravity anomaly	= −	.093	"
Value of local gravity		980.735	dynes.

Correction to reduce barometer readings to standard gravity, $\frac{980.735 - 980.665}{980.665} B_n = +0.002$ inch. Old correction, $+0.007$; correction to old records = 0.002 in. − 0.007 in. = − 0.005 in.

For correcting back records of readings at sea, or at any place where the value of local gravity cannot be determined, the correction is equal to the ratio $\frac{980.599 - 980.665}{980.665} B = -0.000067\,B$. The corrections are as follows:

Barometer reading.	Correction.
From 7 to 22 inches	− 0.001 in.
From 23 to 32 inches	− 0.002 in.
From 380 to 520 mm.	− 0.03 mm.
From 530 to 670 mm.	− 0.04 mm.
From 680 to 820 mm.	− 0.05 mm.

THE HYPSOMETRIC FORMULA AND ITS CONSTANTS.

The fundamental formula for reducing the barometer to sea level and for determining heights by the barometer is the original formula of Laplace, amplified into the following form —

$$(1)\quad Z=K(1+\alpha\theta)\left(\frac{1}{1-0.378\frac{e}{b}}\right)\left(1+\frac{g-g_l}{g}\right)\left(1+\frac{h+h_0}{R}\right)\log\frac{p_0}{p},$$

or, where g_l, the value of local gravity is unknown,

$$(2)\quad Z=K(1+\alpha\theta)\left(\frac{1}{1-0.378\frac{e}{b}}\right)(1+k\cos 2\phi-k'\cos^2 2\phi+C)\left(1+\frac{h+h_0}{R}\right)\log\frac{p_0}{p}$$

in which h = Height of the upper station.
h_0 = Height of the lower station.
$Z = h - h_0$.
p = Atmospheric pressure at the upper station.
p_0 = Atmospheric pressure at the lower station.
R = Mean radius of the earth.
θ = Mean temperature of the air column between the altitudes h and h_0.
e = Mean pressure of aqueous vapor in the air column.
b = Mean barometric pressure of the air column.
ϕ = Latitude of the stations.
K = Barometric constant.
α = Coefficient of the expansion of air.
and k' = Constants depending on the figure of the earth.
C = Constant = the ratio $\frac{g_{45^\circ}-g}{g}$.
g = standard value of gravity = 980.665 dynes.
g_l = Local value of gravity.

The pressures p_0 and p are computed from the height of the column of mercury at the two stations; the ratio $\frac{B_0}{B}$ of the barometric heights may be substituted for the ratio $\frac{p_0}{p}$, if B_0 and B are reduced to the values that would be measured at the same temperature and under the same relative value of gravity.

The correction of the observed barometric heights for instrumental temperature is always separately made, but the correction for the variation of gravity with altitude is generally introduced into the formula itself.

If B_0, B represent the barometric heights corrected for temperature only, we have the equation

$$\frac{p_0}{p}=\frac{B_0}{B}\left(1+\mu\frac{Z}{R}\right),$$

μ being a constant depending on the variation of gravity with altitude $\left(\frac{\mu}{R} = 0.0000003\right)$, and

$$\log\frac{p_0}{p} = \log\frac{B_0}{B} + \log\left(1 + \mu\frac{Z}{R}\right).$$

Since $\frac{\mu Z}{R}$ is a very small fraction, we may write

$$\text{Nap. }\log\left(1 + \frac{\mu Z}{R}\right) = \frac{\mu Z}{R}, \text{ and } \log\left(1 + \frac{\mu Z}{R}\right) = \frac{\mu Z}{R}M,$$

M being the modulus of common logarithms.

By substituting for Z its approximate value $Z = K\log\frac{B_0}{B}$, we have

$$\log\left(1 + \frac{\mu Z}{R}\right) = \frac{\mu K}{R}M\log\frac{B_0}{B}.$$

With these substitutions the barometric formula becomes

(1) $$Z = K(1 + \alpha\theta)\left(\frac{1}{1 - 0.378\frac{e}{b}}\right)\left(1 + \frac{g - g_1}{g}\right)\left(1 + \frac{h + h_0}{R}\right)\times \left(1 + \frac{\mu K}{R}M\right)\log\frac{B_0}{B}, \text{ or}$$

(2) $$Z = K(1 + \alpha\theta)\left(\frac{1}{1 - 0.378\frac{e}{b}}\right)(1 + k\cos 2\phi - k'\cos^2 2\phi + C)\left(1 + \frac{h + h_0}{R}\right)\times \left(1 + \frac{\mu K}{R}M\right)\log\frac{B_0}{B}.$$

As a further simplification we shall put

$$\beta = 0.378\frac{e}{b},\ \gamma = k\cos 2\phi - k'\cos^2 2\phi + C \text{ and } \eta = \frac{\mu K}{R}M,$$

and write for the second form, (2), the formula —

$$Z = K(1 + \alpha\theta)\left(\frac{1}{1 - \beta}\right)(1 + \gamma)\left(1 + \frac{h + h_0}{R}\right)(1 + \eta)\log\frac{B_0}{B}.$$

Values of the constants. — The barometric constant K is a complex quantity defined by the equation

$$K = \frac{\Delta \times B_n}{\delta \times M}.$$

B_n is the normal barometric height of Laplace, 760 *mm.*

Δ is the density of mercury at the temperature of melting ice. The value adopted by the International Meteorological Committee, and which has been employed in previous editions of these tables is $\Delta = 13.5956$. The

most probable value, taking into account the recently determined relation between the liter and the cubic decimeter,[1] is as already stated, $\Delta = 13.5951$ and this value is here adopted.

δ is the density of dry air at 0°C under the pressure of a column of mercury B_n at the sea level and under standard gravity. The value adopted by the International Bureau of Weights and Measures for air under the above conditions and free from CO_2 is $\delta = 0.0012928$ grams per cubic centimeter.[2] This is in close agreement with the value ($\delta = 0.00129278$) used in previous editions of these tables. For air containing 4 parts in 10000 of CO_2 it gives a density of 0.00129307, and for air containing 3 parts in 10000 of CO_2, the proportion adopted by Hann,[3] it gives a density of 0.00129301. Therefore, the value adopted for the density of air containing an average amount of CO_2 is

$$\delta = 0.0012930$$

M (Modulus of common logarithms) = 0.4342945. These numbers give for the value of the barometric constant

$$K = 18400 \text{ meters.}$$

For the remaining constants, the following values have been used:

$\alpha = 0.00367$ for 1° Centigrade. (International Bureau of Weights and Measures: *Travaux et Mémoires*, t. I, p. A. 54.)

$\lambda = k \cos 2\phi - k' \cos^2 2\phi + C = 0.002640 \cos 2\phi - 0.000007 \cos^2 2\phi + 0.000045$

$R = 6367324$ meters. (A. R. Clarke: *Geodesy*, 8°, Oxford, 1880.)

$\eta = \dfrac{\mu K M}{R} = 0.002396$. (Ferrel: *Report Chief Signal Officer*, 1885, pt. 2, pp. 17 and 393.)

TABLES 51, 52, 53, 54, 55.

THE DETERMINATION OF HEIGHTS BY THE BAROMETER.

Tables 51, 52, 53, 54, 55.

English Measures.

Since a barometric determination of the height will rarely be made at a place where g_l is known, the discussion which follows will be confined to the second form of the barometric formula developed in the preceding section (see page xxxix). For convenience in computing heights it is arranged in the following form:

$$Z = K(\log B_0 - \log B)\begin{bmatrix}(1+\alpha\theta) \\ (1+\beta) \\ (1 + k\cos 2\phi - k'\cos^2 2\phi + C)(1+\eta) \\ \left(1 + \dfrac{Z + 2h_0}{R}\right)\end{bmatrix}$$

[1] Comptes Rendus, Quatrième Conférence Générale Poids et Mesures, 1907, pp. 60–61.
[2] Leduc, l.c.
[3] Lehrbuch der Meteorologie, dritte Auflage, 1915, s. 5.

in which K ($\log B_0 - \log B$) is an approximate value of Z and the factors in the brackets are correction factors depending respectively on the air temperature, the humidity, the variation of gravity with latitude, the variation of gravity with altitude in its effect on the weight of mercury in the barometer, and the variation of gravity with altitude in its effect on the weight of the air. With the constants already given, the formula becomes in English measures:

$$Z\ (\text{feet}) = 60368^{1}\,(\log B_0 - \log B)\left[\begin{array}{l}[1 + 0.002039\,(\theta - 32^\circ)] \\ (1+\beta) \\ (1 + 0.002640 \cos 2\phi - 0.000007 \cos^2 2\phi \\ \qquad\qquad + 0.000045)\ (1 + 0.00239) \\ \left(1 + \dfrac{Z + 2h_0}{R}\right)\end{array}\right]$$

In order to make the temperature correction as small as possible for average air temperatures, 50° F. will be taken as the temperature at which the correction factor is zero. This is accomplished by the following transformation:

$$1 + 0.002039\,(\theta - 32^\circ) = [1 + 0.002039\,(\theta - 50^\circ)]\,[1 + 0.0010195 \times 36^\circ].$$

The second factor of this expression combines with the constant, and gives $60368\ (1 + 0.0010195 \times 36^\circ) = 62583.6$.

The first approximate value of Z is therefore

$$62583.6\ (\log B_0 - \log B).$$

In order further to increase the utility of the tables, we shall make a further substitution for $\log B_0 - \log B$, and write

$$62583.6\ (\log B_0 - \log B) = 62583.6\left(\log\frac{29.9}{B} - \log\frac{29.9}{B_0}\right).$$

Table 51 contains values of the expression

$$62583.6 \log \frac{29.9}{B}$$

for values of B varying by intervals of 0.01 inch from 12.00 inches to 30.90 inches.

The first approximate value of Z is then obtained by subtracting the tabular value corresponding to B_0 from the tabular value corresponding to B (B and B_0 being the barometric readings observed and corrected for temperature at the upper and lower stations respectively).

Table 52 gives the temperature correction

$$Z \times 0.002039\ (\theta - 50^\circ).$$

---

[1] In accordance with the relation between the meter and the foot given on p. xix, this constant should be 60367. (See Table 14.)

The side argument is the mean temperature of the air column (θ) given for intervals of 1° from 0° to 100° *F*. The top argument is the approximate difference of altitude *Z* obtained from Table 51.

For temperatures above 50° *F*., the correction is to be added, and for temperatures below 50° *F*., the correction is to be subtracted. It will be observed that the correction is a linear function of *Z*, and hence, for example, the value for $Z = 1740$ is the sum of the corrections in the columns headed 1000, 700, and 40.

In general, accurate altitudes cannot be obtained unless the temperature used is freed from diurnal variation.

Table 53 gives the correction for gravity, and for the effect of the variation of gravity with altitude on the weight of the mercury. When altitudes are determined with aneroid barometers the second factor does not enter the formula. In this case the effect of the latitude factor can be obtained by taking the difference between the tabular value for the given latitude and the tabular value for latitude 45° 29′. The side argument is the latitude of the station given for intervals of 2°. The top argument is the approximate difference of height *Z*.

Table 54 gives the correction for the average humidity of the air at different temperatures. In evaluating the humidity factor as a function of the air temperature, the tables given by Prof. Ferrel have been adopted (*Meteorological researches. Part iii. — Barometric hypsometry and reduction of the barometer to sea level.* Report, U.S. Coast Survey, 1881. Appendix 10.) These tables by interpolation, and by extrapolation below 0° *F*., give the following values for β:

For Fahrenheit temperatures,

θ	β	θ	β	θ	β	θ	β
F.		F.		F.		F.	
−20°	0.00008	10°	0.00104	36°	0.00267	62°	0.00724
−16	.00020	12	.00111	38	.00293	64	.00762
−12	.00032	14	.00118	40	.00322	66	.00801
− 8	.00044	16	.00126	42	.00353	68	.00839
		18	.00134	44	.00386	70	.00877
− 6	0.00050	20	.00143	46	.00421	72	.00914
− 4	.00056	22	.00153	48	.00458		
− 2	.00062	24	.00163	50	.00496	76	0.00990
0	.00068	26	.00174	52	.00534	80	.01065
+ 2	.00075	28	.00187	54	.00572	84	.01141
4	.00082	30	.00203	56	.00610	88	.01217
6	.00089	32	.00222	58	.00648	92	.01293
8	.00096	34	.00243	60	.00686	96	.01369

This correction could have been incorporated with the temperature factor in Table 52, but it is given separately in order that the magnitude of the correction may be apparent, and in order that, when the actual hu-

midity is observed, the correction may be computed if desired, by the expression

$$Z\left(0.378\,\frac{e}{b}\right)$$

where e is the mean pressure of vapor in the air column, and b the mean barometric pressure.

The side argument is the mean temperature of the air column, varying by intervals of 2° from − 20° $F.$ to 96° $F.$, except near the extremities of the table where the interval is 4°. The top argument is the approximate difference of altitude Z.

Table 55 gives the correction for the variation of gravity with altitude in its effect on the weight of the air. The side argument is the approximate difference of altitude Z, and the top argument is the elevation of the lower station h_0.

The corrections given by Tables 53, 54, and 55 are all additive.

Example:

Let the barometric pressure observed, and corrected for temperature, at the upper and lower stations be, respectively, $B = 23.61$ and $B_0 = 29.97$. Let the mean temperature of the air column be 35° $F.$, and the latitude 44° 16′. To determine the difference of height.

	Feet.
Table 51, argument 23.61, gives	6420
Table 51, " 29.97, "	− 64
Approximate difference of height (Z)	= 6484
Table 52, with $Z = 6484$ and $\theta = 35°$ $F.$, gives	− 198
Table 53, with $Z = 6300$ and $\phi = 44°$, gives	+ 16
Table 54, with $Z = 6300$ and $\theta = 35°$ $F.$, gives	+ 16
Table 55, with $Z = 6300$ and $h_0 = 0$, gives	+ 2
Final difference of height (Z)	= 6320

If in this example the barometric readings be observed with aneroid barometers, the correction to be obtained from Table 53 will be simply the portion due to the latitude factor, and this will be obtained by subtracting the tabular value for 45° 29′ from that for 44°, the top argument being $Z = 6300$. This gives 16 − 15 = 1.

Tables 56, 57, 58, 59, 60, 61, 62, 63.

Metric and Dynamic Measures.

The barometric formula developed on page xli is, in metric and dynamic units,

$$Z\ (\text{meters}) = 18400\,(\log B_0 - \log B)\left[\begin{array}{l}(1 + 0.00367\ \theta\ C.)\\ (1 + 0.378\frac{e}{b})\\ (1 + 0.002640 \cos 2\phi - 0.000007 \cos^2 2\phi \\ \qquad\qquad + 0.000045)\ (1\ + 0.00239)\\ \left(1 + \dfrac{Z + 2\,h_0}{6\ 367\ 324}\right)\end{array}\right]$$

The approximate value of Z (the difference of height of the upper and lower station) is given by the factor 18400 ($\log B_0 - \log B$). This expression is computed by means of two entries of a table whose argument is the barometric pressure. In order that the two entries may result at once in an approximate value of the elevation of the upper and lower stations, a transformation is made, which gives the following identities:

$$18400\ (\log B_0 - \log B) = 18400\left(\log\frac{760}{B} - \log\frac{760}{B_0}\right)\text{—Metric measures,}$$

and $$18400\ (\log B_0 - \log B) = 18400\left(\log\frac{1013.3}{B} - \log\frac{1013.3}{B_0}\right)\text{—Dynamic}$$ measures.

Table 56 gives values of the expression $18400 \log \frac{760}{B}$ for values of B varying by intervals of 1 mm. from 300 mm. to 779 mm. The first approximate value of Z is then obtained by subtracting the tabular value corresponding to B_0 from the tabular value corresponding to B (B and B_0 being the barometric readings observed and reduced to 0° $C.$ at the upper and lower stations respectively). The first entry of Table 56 with the argument B gives an approximate value of the elevation of the upper station above sea level, and the second entry with the argument B_0 gives an approximate value of the elevation of the lower station.

Table 57 gives values of the expression $18400 \log \frac{1013.3}{B}$ for values of B varying by intervals of 1 mb. from 0 mb. to 1049 mb. The approximate value of Z is then obtained by subtracting the tabular value corresponding to B_0 from the tabular value corresponding to B (B and B_0 being the barometric readings observed and reduced to 0° $C.$ at the upper and lower stations respectively). The first entry of Table 57 with the argument B gives an approximate value of the elevation of the upper station above sea level, and the second entry with the argument B_0 gives an approximate value of the elevation of the lower station.

Table 58 gives the temperature correction factor, $a = 0.00367\theta$, for each tenth of a degree centigrade, from 0° $C.$ to 50.9° $C.$ To find the correction corresponding to any mean temperature of the air column, θ, multiply the approximate altitude as determined from Table 56 or 57 by the value of a obtained from this table, and add the result if θ is above 0° $C.$; subtract, if below 0° $C.$

Attention is called to the fact that the formula is linear with respect to θ, and hence that the correction, for example, for 59°.8 $C.$ equals the correction for 50°.8 plus the correction for 9° or .186 + .033 = .219, and is to be added.

Table 59 is an amplification of Table 58 and gives the temperature correction $0.00367\ \theta \times Z$.

The side argument is the approximate difference of elevation Z and the top argument is the mean temperature of the air column. The values of Z vary by intervals of 100 m. from 100 to 4000 meters and the temperature varies by intervals of 1° from 1° $C.$ to 10° $C.$ with additional columns for 20°, 30°, and 40° $C.$ This formula also is linear with respect to θ, and hence the correction, for example, for 27° equals the correction for 20° plus the correction for 7°. When the table is used for temperatures below 0° $C.$ the tabular correction must be subtracted from, instead of added to, the approximate value of Z.

Table 60 (pp. 149 and 150) gives the correction for humidity resulting from the factor $0.378 \frac{e}{b} \times Z = \beta Z$.

Page 149 gives the value of $0.378 \frac{e}{b}$ multiplied by 10000. The side argument is the mean pressure of aqueous vapor, e, which serves to represent the mean state of humidity of the air between the two stations. $e = \frac{1}{2}(e_1 + e_0)$ (e_1 and e_0 being the vapor pressures observed at the two stations) has been written at the head of the table, but the value to be assigned to e is in reality left to the observer, independently of all hypothesis. The top argument is the mean barometric pressure $\frac{1}{2}(B + B_0)$.

The vapor pressure varies by millimeters from 1 to 40, and the mean barometric pressure varies by intervals of 20 mm. from 500 mm. to 760 mm. The tabular values represent the humidity factor β, or $0.378 \frac{e}{b}$, multiplied by 10000.

Page 150 gives the correction for humidity, with Z and $10000 \times 0.378 \frac{e}{b}$ (derived from page 149) as arguments.

The approximate difference of altitude is given by intervals of 100 meters from 100 to 4000 meters, with additional lines for 5000, 6000, and 7000 meters. The values of $10000\ \beta$ vary by intervals of 25 from 25 to 300. The tabular values are given in tenths of meters to facilitate and increase the accuracy of interpolation.

Table 61. Humidity correction: Value of $\frac{1}{2}\left(\frac{0.378\frac{e}{b}}{0.00367}\right)$. It has been found advantageous to express the humidity term, βZ, as a correction to the temperature term, $\alpha\,\theta\,Z$.

Let $\alpha \Delta \theta Z = \beta Z$; then, $$\Delta\theta = \frac{\beta}{\alpha} = \frac{0.378\frac{e}{b}}{0.00367}.$$

For convenience in computing, the tabulated values of $\Delta\,\theta$ are for $\frac{1}{2}\left(\frac{0.378\frac{e}{b}}{0.00367}\right)$. The side and top arguments are air and vapor pressures, respectively, in mm. on p. 151 and in mb. on p. 152. Instead of computing $\Delta\,\theta$ from the mean of the values of B and e at the upper and lower stations it is computed for each station separately, and the sum of the two determinations is added to θ.

Table 62 gives the correction for gravity, and for the effect of the variation of gravity with altitude on the weight of the mercurial column. When altitudes are determined with aneroid barometers the latter factor does not enter the formula. In this case the effect of the latitude factor can be obtained by subtracting the tabular value for latitude 45° 29′ from the tabular value for the latitude in question.

The side argument is the approximate difference of elevation Z varying by intervals of 100 meters from 100 to 4000, and by 500 meters from 4000 to 7000. The top argument is the latitude, varying by intervals of 5° from 0° to 75.°

Table 63 gives the correction for the variation of gravity with altitude in its effect on the weight of the air.

The side argument is the same as in Table 62; the top argument is the height of the lower station, varying by intervals of 200 meters from 0 to 2000, with additional columns for 2500, 3000 and 4000 meters.

The corrections given in Table 62 and Table 63 apply to the approximate heights computed from metric or dynamic measures by the use of Tables 56 to 61, inclusive, and are additive.

Example: (Metric Measures.)

Let the barometric reading (reduced to 0° C.) at the upper station be 655.7 mm.; at the lower station, 772.4 mm. Let the mean temperature of the air column be $\theta = 12°.3$ C., the mean vapor pressure $e =$ 9 mm. and the latitude $\phi = 32°$.

Table 56, with argument 655.7, gives	1179 meters.
Table 56, " " 772.4, "	− 129
Approximate value of Z	= 1308
Table 59, with $Z = 1308$ and $\theta = 12°.3$ C, gives	59
Table 60, with $e = 9$ mm. and $Z = 1370$, gives	7
Table 62, with $Z = 1370$ and $\phi = 32°$, gives	5
Table 63, with $Z = 1370$ and $h_o = 0$, gives	0
Corrected value of Z	= 1379 meters.

Example: (Dynamic Measures.)

Let the barometer reading (reduced to 0° C.) at the upper station be 448.6 mb.; at the lower station, 1000.3 mb. Let the vapor pres-

sure at the upper station be 2.4 mb.; at the lower station 7.3 mb. Let the mean temperature of the air column be $\theta = 5^\circ\!.8$ *C.* and the latitude $\phi = 39^\circ\ 25'$ *N.*

Table 57, with argument 448.6, gives	6511 meters.
Table 57, with argument 1000.3, gives	104
Approximate value of Z	6407 meters.
Table 61, with arguments 449 and 2.4 gives $\Delta\ \theta = 0.3$	
Table 61, with arguments 1000 and 7.3 gives $\Delta\ \theta = 0.4$	
Table 58, with $\theta = 5^\circ\!.8 + 0^\circ\!.7 = 6^\circ\!.5$, and $Z = 6407$ gives $6407 \times 0.024 =$	154
Table 62 with $Z = 6561$ and $\phi = 39^\circ\ 25'$, gives	19
Table 63 with $Z = 6561$ and $h_0 = 0$, gives	7
Corrected value of Z	= 6587 meters.

Table 64. *Difference of height corresponding to a change of* 0.1 *inch in the barometer — English measures.*

If we differentiate the barometric formula, page xlii, we shall obtain, neglecting insensible quantities,

$$dZ = -26281\,\frac{dB}{B}\left(1 + 0.002039\,(\theta - 32^\circ)\right)(1 + \beta),$$

in which B represents the mean pressure of the air column dZ.

Putting $dB = 0.1$ inch,

$$dZ = -\frac{2628.1}{B}\left(1 + 0.002039\,(\theta - 32^\circ)\right)(1 + \beta).$$

The second member, taken positively, expresses the height of a column of air in feet corresponding to a tenth of an inch in the barometer under standard gravity. Since the last factor $(1 + \beta)$, as given on page xliii, is a function of the temperature, the function has only two variables and admits of convenient tabulation.

Table 64, containing values of dZ for short intervals of the arguments B and θ, has been taken from the Report of the U.S. Coast Survey, 1881, Appendix 10, — *Barometric hypsometry and reduction of the barometer to sea level,* by Wm. Ferrel.[1]

The temperature argument is given for every 5° from 30° *F.* to 85° *F.*, and the pressure argument for every 0.2 inch from 22.0 to 30.8 inches.

This table may be used in computing small differences of altitude, and, up to a thousand feet or more, very approximate results may be obtained.

[1] Due to the use of a slightly different value for the coefficient of expansion, Prof. Ferrel's formula, upon which the table is computed, is

$$dZ = -\frac{2628.4}{B}\left(1 + 0.002034\,(\theta - 32^\circ)\right)(1 + \beta).$$

Example:

Mean pressure at Augusta, October, 1891, 29.94; temperature, $60^\circ.8$ *F.*
Mean pressure at Atlanta, October, 1891, 28.97; temperature, $59^\circ.4$
Mean pressure of air column $B = 29.455$; $\theta = 60^\circ.1$

Entering the table with 29.455 and $60^\circ.1$ as arguments, we take out 94.95 as the difference of elevation corresponding to a tenth of an inch difference of pressure. Multiplying this value by the number of tenths of inches difference in the observed pressures, viz. 97, we obtain the difference of elevation 921 feet.

TABLE 65.

Table 65. *Difference of height corresponding to a change of one millimeter in the barometer — Metric measures.*

This table has been computed by converting Table 64 into metric units. The temperature argument is given for every 2° from − 2° *C.* to + 36° *C.*; the pressure argument is given for 10-mm. intervals from 760 to 560 mm.

TABLE 66.

Table 66. *Babinet's formula for determining heights by the barometer.*

Babinet's formula for computing differences of altitude [1] represents the formula of Laplace quite accurately for differences of altitude up to 1000 meters, and within one per cent for much greater altitudes. As it has been quite widely disseminated among travelers and engineers, and is of convenient application, the formula is here given in English and metric measures. It might seem desirable to alter the figures given by Babinet so as to conform to the newer values of the barometrical constants now adopted; but this change would increase the resulting altitudes by less than one-half of one per cent without enhancing their reliability to a corresponding degree, on account of the outstanding uncertainty of the assumed mean temperature of the air.

The formula is, in English measures,

$$Z \text{ (feet)} = 52494 \left[1 + \frac{t_0 + t - 64^\circ}{900}\right] \frac{B_0 - B}{B_0 + B};$$

and in metric measures,

$$Z \text{ (meters)} = 16000 \left[1 + \frac{2\,(t_0 + t)}{1000}\right] \frac{B_0 - B}{B_0 + B},$$

in which Z is the difference of elevation between a lower and an upper station at which the barometric pressures corrected for all sources of instrumental error are B_0 and B, and the observed air temperatures are t_0 and t, respectively.

For ready computation the formula is written

$$Z = C \times \frac{B_0 - B}{B_0 + B},$$

[1] *Comptes Rendus*, Paris, 1850, vol. xxx., page 309.

and the factor C, computed both in English and metric measures, has been kindly furnished by the late Prof. Cleveland Abbe. The argument is $\frac{1}{2}(t_0 + t)$ given for every 5° Fahrenheit between 10° and 100° F., and for every 2° Centigrade between − 10° and 36° Centigrade.

In using the table, it should be borne in mind that on account of the uncertainty in the assumed temperature, the last two figures in the value of C are uncertain, and are here given only for the sake of convenience of interpolation. Consequently one should not attach to the resulting altitudes a greater degree of confidence than is warranted by the accuracy of the temperatures and the formula. The table shows that the numerical factor changes by about one per cent of its value for every change of five degrees Fahrenheit in the mean temperature of the stratum of air between the upper and lower stations; therefore the computed difference of altitude will have an uncertainty of one per cent if the assumed temperature of the air is in doubt by 5°F. With these precautions the observer may properly estimate the reliability of his altitudes whether computed by Babinet's formula or by more elaborate tables.

Example:

Let the barometric pressure observed and corrected for temperature at the upper and lower stations be, respectively, B = 635 mm. and B_0 = 730 mm. Let the temperatures be, respectively, t = 15° C., $t_0 = 20_0$ C. To find the approximate difference of height.

With $\frac{1}{2}(t_0 + t) = \frac{20^\circ + 15^\circ}{2} = 17^\circ.5$ C., the table in metric measures gives

$$C = 17120 \text{ meters.} \quad \frac{B_0 - B}{B_0 + B} = \frac{95}{1365}.$$

$$\text{The approximate difference of height} = 17120 \times \frac{95}{1365} = 1191.5 \text{ meters.}$$

THERMOMETRICAL MEASUREMENT OF HEIGHTS BY OBSERVATION OF THE TEMPERATURE OF THE BOILING POINT OF WATER.

When water is heated in the open air, the elastic force of its vapor gradually increases, until it becomes equal to the incumbent weight of the atmosphere. Then, the pressure of the atmosphere being overcome, the steam escapes rapidly in large bubbles and the water boils. The temperature at which water boils in the open air thus depends upon the weight of the atmospheric column above it, and under a less barometric pressure the water will boil at a lower temperature than under a greater pressure. Now, as the weight of the atmosphere decreases with the elevation, it is obvious that, in ascending a mountain, the *higher* the station where an observation is made, the *lower* will be the temperature of the boiling point.

The difference of elevation between two places therefore can be de-

duced from the temperature of boiling water observed at each station. It is only necessary to find the barometric pressures which correspond to those temperatures, and from these to compute the difference of height by the tables given herein for computing heights from barometric observations.

From the above, it may be seen that the heights determined by means of the temperature of boiling water are less reliable than those deduced from barometric observations. Both derive the difference of altitude from the difference of atmospheric pressure. But the temperature of boiling water is a less accurate measurement of the atmospheric pressure than is the height of the barometer. In the present state of thermometry it would hardly be safe, indeed, to rely, in the most favorable circumstances, upon quantities so small as hundredths of a degree, even when the thermometer has been constructed with the utmost care; moreover, the quality of the glass of the instrument, the form and substance of the vessel containing the water, the purity of the water itself, the position at which the bulb of the thermometer is placed, whether in the current of the steam or in the water, — all these circumstances cause no inconsiderable variations to take place in the indications of thermometers observed under the same atmospheric pressure. Owing to these various causes, an observation of the boiling point, differing by one-tenth of a degree from the true temperature, ought to be still admitted as a good one. Now, as the tables show, an error of one-tenth of a degree Centigrade in the temperature of boiling water would cause an error of 2 millimeters in the barometric pressure, or of from 70 to 80 feet in the final result, while with a good barometer the error of pressure will hardly ever exceed one-tenth of a millimeter, making a difference of 3 feet in altitude.

Notwithstanding these imperfections, the hypsometric thermometer is of the greatest utility to travellers and explorers in rough countries, on account of its being more conveniently transported and much less liable to accidents than the mercurial barometer. A suitable form for it, designed by Regnault (*Annales de Chimie et de Physique*, Tome xiv, p. 202), consists of an accurate thermometer with long degrees, subdivided into tenths. For observation the bulb is placed about 2 or 3 centimeters above the surface of the water, in the steam arising from distilled water in a cylindrical vessel, the water being made to boil by a spirit-lamp.

TABLES 67, 68.

Barometric pressures at standard gravity corresponding to the temperature of boiling water.

Table 67. *English Measures.*

Table 68. *Metric Measures.*

Table 67 is copied directly from Table 70. The argument is the temperature of boiling water for every tenth of a degree from 185°.0 to 214°.9 Fahrenheit. The tabular values are given to the nearest 0.001 inch.

Table 68 is copied directly from Table 72. The argument is given for every tenth of a degree from 80°.0 to 100°.9 C. The tabular values are given to the nearest 0.01 mm.

HYGROMETRICAL TABLES.

PRESSURE OF SATURATED AQUEOUS VAPOR.

In former editions of these tables the values of aqueous vapor pressures at temperatures between $-29°$ and $100°$ C. were based upon Broch's reduction of the classic observations of Regnault. (*Travaux et Mémoires du Bureau international des Poids et Mesures*, t. I, p. A 19–39). In these computations the same continuous mathematical function was employed to calculate the values of vapor pressure both above and below the point of change of state on freezing. This resulted in a systematic disagreement between observed and computed vapor pressures below the freezing point, and confirmed the inference from the laws of diffusion following from the kinetic theory of gases, namely, that the pressure of the vapor is different according as it is in contact with its liquid or its solid.

Seeking to remove the uncertainty of the values of vapor pressures at temperatures below freezing, Marvin (Annual Report Chief Signal Officer, 1891, Appendix No. 10) made direct experimental determinations thereof, in the course of which the specimens of water were cooled to temperatures of from $-10°$ to $-12°$ C. while still retaining the liquid state, thus affording opportunity for measurements of vapor pressure over ice and over water at various temperatures below the freezing point. The results of these investigations, confirmed by similar independent studies by Juhlin, were printed in the third revised edition of these tables.

Since 1907, especially, several extended series [1] of entirely new determinations, together covering the whole range of temperature from $-70°$ *C.* to $+374°$ *C.*, have been made at the Physikalische-Technischen Reichsanstalt. Because of the elaborate instrumental means available and the extreme effort to eliminate all possible errors these results may be presumed to represent the most accurate series of experimental values of this important physical datum available to science.

Hitherto no satisfactory mathematical equation has been offered adequate to give computed values of vapor pressures with an order of precision comparable to the systematic self consistency of the observations

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[1] Scheel, Karl und Heuse, Wilhelm. Bestimmung des Sättigungsdrucks von Wasserdampf unter 0°. Annalen der Physik, 1909, 29: 723–737.

Bestimmung des Sättigungsdrucks von Wasserdampf zwischen 0° und + 50°. Annalen der Physik, 1910, 31: 715–736.

Holborn, L. und Henning, F. Über das Platinthermometer und den Sättigungsdruck des Wasserdampfes zwischen 50 und 200°. Annalen der Physik, 1908, 26: 833–883.

Holborn, L. und Baumann, A. Über den Sättigungsdruck des Wasserdampfes oberhalb 200°. Annalen der Physik, 1910, 31: 945–970.

themselves. This is particularly the case with the more recent data over the whole range of temperature from 0° to the critical temperature at about 374° Centigrade. Two remedies have been utilized to overcome this difficulty. First, the employment of separate equations of interpolation adjusted to fit the observations accurately over a short range of temperature, 0° to 100° for example, as in the case of Broch's computations. (It has already been mentioned that theory requires the function for vapor pressures over ice to differ from the one for pressures over water, so that the values for ice offer no difficulty.) The second remedy sometimes employed consists in fitting any reasonably accurate equation as closely as possible to the observations. The differences between the observed and computed values are then charted and a smooth curve drawn by hand through the points thus located. This method has been employed notably by Henning[1] and others, using an empirical equation proposed by Thiesen.

For the purpose of these tables it has been found possible from among a multitude of equations to develop a modification of the theoretical equation of Van der Waals which fits the whole range of observations much better than any hitherto offered and with an order of precision quite comparable to the data itself. In fact, the equation serves to disclose inconsistencies in the observations, more particularly between 50° and 80° *C.*, which seem to suggest the need for further experimental determination of values possibly over the range between 0° and 100°.

Although it is not difficult to show, as Cederberg [2] has done, that the simple form of general theoretical equation for all vapors developed by Van der Waals is inadequate to represent experiments on water vapor with sufficient accuracy for practical requirements, nevertheless a somewhat simple elaboration of its single constant suffices to remove this limitation in a very satisfactory manner.

The resulting equation is:

$$\log e = \log \pi - [A - bX + mX^2 - nX^3 + sX^4]\,\frac{\theta - T}{T}, \text{ where } X = \frac{T - 453}{10}. \quad (1)$$

The quantity within the square brackets in this equation replaces a single term of the Van der Waals equation which was regarded by him as a constant.

In Van der Waals's original equation π and θ are respectively the critical pressure and temperature (absolute). In the present state of physical science, and from the very nature of the data, these quantities cannot be evaluated exactly. Moreover it is unnecessary to do so for the mere purpose of accurately fitting a mathematical curve to the observational data,

[1] Annalen der Physik, 1907, 22: 609–630.

[2] Cederberg, Ivar W. Über eine exakte Dampfdruckberechnungsmethode. Physik. Zeitschr. xv: 697, 1914; Über die Temperaturabhängigkeit einiger physikalischen Eigenschaften des Wassers in seinen vershiedenen Aggregatzuständen. Physik. Zeitschr. xv: 824, 1914.

because the same result is attained by simply passing the curve through a point more accurately known and as near as may be to the critical point. This is equivalent to defining π and θ by an "equation of condition." Another "equation of condition" fixes the pressure at the boiling point which by definition must be 760 mm. From the considerations given on page xi computations are greatly facilitated by taking all temperatures on the approximate absolute scale represented by $T = 273 + t°$.

A careful preliminary analysis of the observational data in the vicinity of the critical temperature resulted in assigning values to θ and π as follows:

$$\theta = 643°, \log. \pi = 5.1959000$$

It is emphasized here again that these data do not represent critical temperature conditions, but simply a convenient point on the pressure curve slightly below the critical temperature, the value of which is fixed with considerable accuracy by the observational data.

The value of the constant A was fixed by the equation of condition, $e = 760$ mm. when $T = 373$ ($X = -8$). The remaining constants (b, m, n, s) are computed by the method of least squares. The results are as follows:

$$\begin{aligned} A &= 3.1473172 \\ b &= .00295944 \\ m &= .0004191398 \\ n &= .0000001829924 \\ s &= .00000008243516 \end{aligned}$$

The number of significant figures in the constants is obviously greater than the accuracy of the data justifies; but is justified to facilitate computation and to secure accuracy in the interpolation of values which should themselves be as accurate as the data.

Thiesen[1] has shown that the observed values of vapor pressure over ice can be reproduced by the equation

$$\text{Log } e = \log e_0 + 9.632\ (1 - 0.00035\,t)\,\frac{t}{T}$$

where $e_0 = 4.5785$, and $T = 273 + t$.

For convenience in computing this equation, for metric units it may be written

$$\text{Log } e = 0.66072 + \left(\frac{9.632 - 0.0033712\,t}{273 + t}\right)t. \qquad (2)$$

For English units the equation becomes

$$\text{Log } e = \bar{1}.255888 + \left(\frac{9.69193 - 0.00187289\,t_1}{459.4 + t_1}\right)(t_1 - 32). \qquad (3)$$

t = degrees Centigrade; t_1 = degrees Fahrenheit.

[1] Thiesen M. Die Dampfspannung über Eis. (Mitteilung aus der Physikalisch-Technischen Reichsanstalt.) Annalen der Physik, 1909; 29 : 1057.

The vapor pressures in the tables here given are expressed in standard manometric units.

TABLE 69.

Table 69. *Pressure of aqueous vapor over ice. English measures.*

The pressures, computed by equation (3) above, are given to 0.00001 inch for each degree of temperature from $-60°$ to $-15°$, for each half degree from -15 to $\pm 0°$, and for each tenth of a degree from $\pm 0°.0$ to $+32°.0$.

TABLE 70.

Table 70. *Pressure of aqueous vapor over water. English measures.*

This table has been computed by converting Table 72 into English units. The temperature argument is given for every 0°.1 from 32°.0 to 214°.9 *F.* The vapor pressures are to 0.0001 inch from 32°.0 to 130°.9, *F.*, and to 0.001 inch from 130°.0 to 214°.9 *F.*

TABLE 71.

Table 71. *Pressure of aqueous vapor over ice. Metric measures.*

The pressures, computed by equation (2) above, are given to the nearest 0.0001 mm. for each degree of temperature from $-70°$ to $-50°$, for each half degree from $-50°$ to $-35°$, and each tenth of a degree from $-35°.0$ to $\pm 0°.0$.

TABLE 72.

Table 72. *Pressure of aqueous vapor over water. Metric measures.*

The pressures, computed by equation (1) above, are given for each tenth of a degree to 0.001 mm. from 0°.0 to 50°.9, and to 0°.01 mm. from 50°.0 to 100°.9. They are given for each degree to 0.1 mm. from 100° to 189°, and in millimeters from 190° to 374°.

TABLES 73, 74.

Table 73. *Weight of cubic foot of saturated aqueous vapor — English measures.*

Table 74. *Weight of a cubic meter of saturated aqueous vapor — Metric measures.*

For many years it has been customary to assume that the specific gravity of water vapor relative to dry air is a constant whose theoretical value computed from the accurately known densities of its constituent gases is 0.6221. Direct experimental determinations of the specific volume of dry saturated steam (as yet but few observations are available at moderate temperatures) show conclusively (1) that this theoretical specific gravity is true only for saturated vapor at very low temperatures or when the vapor is in a very attenuated state of partial saturation; (2) that at increasingly higher temperatures the specific gravity is increasingly greater than 0.6221. These assertions are in accord with the values of weight per cubic foot of

water vapor tabulated by Marks & Davis [1] from the most recent determinations of the specific volume of water vapor. However, owing to the paucity of data, and its inaccuracy for the range of atmospheric temperatures and conditions, the values derived from densities given by Marks and Davis between 10° and 50° are probably too low and require revision. The basis on which this assertion is made is the generalization that the theoretical value 0.6221 is probably a minimum specific gravity towards which actual values asymptotically tend at low temperature and low relative humidity in the meteorological sense, or high super heats in the steam engineering sense. This generalization affords a very helpful "control" in harmonizing and combining experimental determinations of specific volume. It was thus employed in a recomputation, from the original experimental data on specific volumes, of the accompanying table of specific gravities, δ, of saturated water vapor.

$T.$ ($C°$)	δ	$T.$ ($C°$)	δ
− 60	0.6226	60	0.6273
50	0.6227	70	0.6283
40	0.6229	80	0.6296
30	0.6230	90	0.6311
20	0.6232	100	0.6329
− 10	0.6235	110	0.6351
± 0	0.6238	120	0.6377
+ 10	0.6241	130	0.6408
20	0.6246	140	0.6446
30	0.6251	150	0.6491
40	0.6257	160	0.6545
50	0.6264	170	0.6609
		180	0.6687

The weight of a *cubic meter* of saturated vapor is given by the expression

$$W = \frac{a\delta}{1 + \alpha t} \cdot \frac{e}{760},$$

a is the weight of a cubic meter of dry air (free from carbonic acid) at temperature 0° $C.$, and pressure of 760 millimeters of mercury of standard density under standard gravity: $a = 1.29278$ kg. (Bureau International des Poids et Mesures: *Travaux et Mémoires*, t. I, p. A 54.)

δ is the density of aqueous vapor relative to dry air: $\delta = 0.6221$.

While, as stated above, there is reason for believing that this value is too low, for atmospheric temperatures the error is less than one per cent. For practical work in meteorology and at moderate temperatures, it seems best to retain the theoretical value until the actual value has been determined

[1] Marks, Lionel S., and Davis, Harvey N. Tables and diagrams of the thermal properties of saturated and superheated steam. New York, 1909.

with greater accuracy. For all important calculations except those at low temperatures the values of δ in the Table on page lvi should be employed.

e is the pressure of saturated aqueous vapor at temperature t, taken from Tables 71 and 72.

α is the coefficient of expansion of air for 1° $C.$: $\alpha = 0.003670$.

t is the temperature in Centigrade degrees.

Whence we have

$$W \text{ (grams)} = 1.05821 \times \frac{e}{1 + 0.003670\,t}.$$

Table 74 is computed from this formula and gives the weight of saturated vapor in grams in a cubic meter for dew-points from $-29°$ to $+40\overset{\circ}{.}9$ $C.$, the intervals from 6° to $40\overset{\circ}{.}9$ $C.$, being $0\overset{\circ}{.}1$ $C.$ The tabular values are given to three decimals.

The weight W_1 of a *cubic foot* of saturated vapor is obtained by converting the foregoing constants into English measures.

The weight of a cubic foot of dry air at temperature 32° $F.$ and at a pressure of 760 mm. or 29.921 inches is

$$a_1 \text{ (grains)} = \frac{1292.78 \times 15.43235}{(3.280833)^3} = 564.94.$$

We have therefore,

$$W_1 \text{ (grains)} = \frac{a_1 \delta}{29.921} \times \frac{e_1}{1 + \alpha_1 (t_1 - 32°)} = 11.7459 \frac{e_1}{1 + 0.002039\,(t_1 - 32°)}$$

The temperature t_1 is expressed in degrees Fahrenheit; the vapor pressure e_1, expressed in inches, is obtained from Tables 69 and 70.

Table 73 gives the weight of saturated aqueous vapor in grains per cubic foot for dew points given to every degree from $-30°$ to $+20°$, to each half degree from $+20°$ to $+70°$, and for every $0\overset{\circ}{.}2$ from $70\overset{\circ}{.}0$ to $119\overset{\circ}{.}8$ F, the values being computed to the thousandth of a grain.

REDUCTION OF OBSERVATIONS WITH THE PSYCHROMETER AND DETERMINATION OF RELATIVE HUMIDITY.

The psychrometric formula derived by Maxwell, Stefan, August, Regnault and others is, in its simplest form,

$$e = e' - AB\,(t - t'),$$

in which t = Air temperature.

t' = Temperature of the wet-bulb thermometer.

e = Pressure of aqueous vapor in the air.

e' = Vapor pressure, saturated, at temperature t'.

B = Barometric pressure.

A = A quantity which, for the same instrument and for certain conditions, is a constant, or a function depending in a small measure on t'.

All pressures are expressed in heights of mercurial column under standard gravity.

The important advance made since the time of Regnault consists in recognizing that the value of A differs materially according to whether the wet-bulb is in quiet or moving air. This was experimentally demonstrated by the distinguished Italian physicist, Belli, in 1830, and was well known to Espy, who always used a whirled psychrometer. The latter describes his practice as follows: "When experimenting to ascertain the dew-point by means of the wet-bulb, I always swung both thermometers moderately in the air, having first ascertained that a moderate movement produced the same depression as a rapid one."

The principles and methods of these two pioneers in accurate psychrometry have now come to be adopted in the standard practice of meteorologists, and psychrometric tables are adapted to the use of a whirled or ventilated instrument.

The factor A depends in theory upon the size and shape of the thermometer bulb, largeness of stem and velocity of ventilation, and different formulæ and tables would accordingly be required for different instruments. But by using a ventilating velocity of three meters or more per second, the differences in the results given by different instruments vanish, and the same tables can be adapted to any kind of a thermometer and to all changes of velocity above that which gives sensibly the greatest depression of the wet-bulb temperature; and with this arrangement there is no necessity to measure or estimate the velocity in each case further than to be certain that it does not fall below the assigned limit.

The formula and tables here given for obtaining the vapor pressure and dew-point from observations of the whirled or ventilated psychrometer are those deduced by Prof. Wm. Ferrel (*Annual Report Chief Signal Officer*, 1886, Appendix 24) from a discussion of a large number of observations.

Taking the psychrometric formula in metric units, pressures being expressed in millimeters and temperatures in centigrade degrees, Prof. Ferrel derived for A the value

$$A = 0.000656\ (1 + 0.0019\ t').$$

In this expression for A, the factor depending on t' arises from a similar term in the expression for the latent heat of water, and the theoretical value of the coefficient of t' is 0.00115. Since it would require a very small change in the method of observing to cause the difference between the theoretical value and that obtained from the experiments, Prof. Ferrel adopted the theoretical coefficient 0.00115 and then recomputed the observations, obtaining therefrom the final value

$$A = 0.000660\ (1 + 0.00115\ t').$$

With this value the psychrometric formula in metric measures becomes

$$e = e' - 0.000660\, B\,(t - t')\,(1 + 0.00115\, t').$$

Expressed in English measures, the formula is

$$e = e' - 0.000367\, B\,(t - t')\,[1 + 0.00064\,(t' - 32^\circ)]$$

$$= e' - 0.000367\, B\,(t - t')\left(1 + \frac{t' - 32}{1571}\right)$$

in which e = Vapor pressure in inches.
e' = Pressure of saturated aqueous vapor at temperature t'.
t = Temperature of the air in Fahrenheit degrees.
t' = Temperature of the wet-bulb thermometer in Fahrenheit degrees.
B = Barometric pressure in inches.

TABLE 75. *Reduction of Psychrometric Observations — English measures.*

Values of $e = e' - 0.000367\, B\,(t - t')\left(1 + \frac{t' - 32}{1571}\right)$

This table provides for computing the vapor pressure, e, from observations of ventilated wet- and dry-bulb Fahrenheit thermometers. From the vapor pressure thus computed the dew-point and relative humidity of the atmosphere may be obtained.

The tabular values of the vapor pressure, e, are computed for degree intervals of t' from -20° to $+110^\circ$ F. Below $+10^\circ$ the interval for $t - t'$ is $0^\circ.2$, and above 10° the interval is 1°. The computation has been made for $B = 30.0$ inches, but at the bottom, and usually, also, at the top of each page of the table is given a correction, $\Delta e \times \Delta B$, computed for $B = 29.0$ inches or $\Delta B = 1$ inch, and for the value of t' indicated. The correction is a linear function of ΔB. For atmospheric pressures less than 30.0 inches, it is to be added to the tabular values of e, while for atmospheric pressures greater than 30.0 inches it is to be subtracted.

The values of e are given to 0.0001 inch for t' less than 10°, and to 0.001 inch for t' greater than 10°.

Examples:

1. Given, $t = 84^\circ.3$; $t' = 66^\circ.7$, and $B = 30.00$ inches. With $t' = 66^\circ.7$ and $t - t' = 17^\circ.6$ as arguments, Table 75 gives for e the value 0.462 inch. On page 174, for $t - t' = 0^\circ.0$ it is seen that a vapor presure of 0.462 inch corresponds to a temperature $t' = t = 57^\circ$, which is the saturation, or dew-point temperature for the data given.
2. Given, $t = 34^\circ.5$; $t' = 29^\circ.4$; $B = 22.3$ inches. With $t' = 29^\circ.4$ and $t - t' = 5^\circ.1$ as arguments, Table 75 gives for e the value 0.104.
   $\Delta B = 30.0 - 22.3 = 7.7$, and $\Delta e \times \Delta B = 0.0018 \times 7.7 = 0.014$.
   Correct value of e $= 0.118$ inch.

For $t - t' = 0^\circ.0$ a vapor pressure of 0.118 inch corresponds to a temperature $t' = t = 23^\circ$ (see page 174), which is the saturation or dew-point temperature for the data given.

Table 76. *Relative humidity — Temperature Fahrenheit.*

The table gives the vapor pressure corresponding to air temperatures from -30° to $+120^\circ$ at degree intervals (side argument) and for percentages of saturation at 10 per cent intervals (top argument). It is computed from the formula

$$e = e_s \times \text{relative humidity},$$

where e_s is the saturation vapor pressure at the given air temperature. Below a temperature of 20° the values of e are given to 0.0001 inch; above 20° they are given to 0.001 inch.

Examples:

1. In dew-point example 1, above, the computed vapor pressure is 0.462 inch. Entering Table 76 with air temperature $84^\circ.3$ as side argument, we obtain vapor pressure

0.356 inch	= relative humidity	30
and		
0.462 inch − 0.356 inch = 0.106 inch	= " " $\frac{90}{10}$ =	9
therefore, vapor pressure		—
0.462 inch with $t = 84^\circ.3$ *F.*	= " "	39

2. In dew-point example 2, above, the computed vapor pressure is 0.118 inch. Entering Table 76 with air temperature $34^\circ.5$ as side argument, we obtain, vapor pressure

0.100 inch	= relative humidity	50
and		
0.118 inch − 0.100 inch = 0.018 inch	= " " $\frac{90}{10}$ =	9
therefore, vapor pressure		—
0.118 inch with $t = 34.5$ *F.*	= " "	59

Reduction of Psychrometric Observations — Metric measures.

Table 77. *Values of* $e = e' - 0.000660\, B\, (t - t')\, (1 + 0.00115\, t')$

This table provides for computing the vapor pressure from observations of ventilated wet- and dry-bulb Centigrade thermometers. From the vapor pressure thus computed the dew-point and relative humidity of the atmosphere may be obtained.

The tabular values of the vapor pressure, e, are computed for degree intervals of t' from -30° to $+45^\circ$ *C.* Below $-5^\circ.0$ the interval for $t - t'$

is $0^\circ.1$, and above $-5^\circ.0$ the interval is 1°. The computation has been made for $B = 760$ mm. but on each page of the table is given a correction, $\Delta e \times \Delta B$, computed for $B = 660$, or $\Delta P = 100$ mm., and for the values of t' indicated. The correction is a linear function of ΔB. For atmospheric pressures less than 760 mm. it is to be added to the tabular values of e, while for atmospheric pressures greater than 760 mm. it is to be subtracted. The values of e are given to 0.001 mm. for t' less than $-5^\circ.0$, and to 0.01 mm. for t' greater than $-5^\circ.0$.

Example:

Given, $t = 10^\circ.4$ *C.*; $t' = 8^\circ.3$ *C.*, and $B = 740$ mm. With $t' = 8^\circ.3$ and $t - t' = 2^\circ.1$ as arguments, Table 77 gives for e the value 7.15 mm.

$\Delta B = \dfrac{760 - 740}{100} = 0.2.$ $\Delta e \times \Delta B = 0.14 \times 0.2 \qquad = 0.03.$

Corrected value of $e \qquad = 7.18$ mm.

For $t - t' = 0$ a vapor pressure of 7.18 mm. corresponds to a temperature $t' = t = 6^\circ.3$ *C.*, which is the saturation, or dew-point temperature for the data given.

TABLE 78.

Table 78. *Relative humidity — Temperature Centigrade.*

This table gives the vapor pressure corresponding to air temperatures from -45° *C.* to $+55^\circ$ *C.* at degree intervals (side argument) and for percentage of saturation at 10 per cent intervals (top argument). It is computed from the same formula as Table 76, namely,

$$e = e_s \times \text{relative humidity}.$$

Below a temperature of $+5^\circ.0$ the values of e are given to 0.01 mm.; above $5^\circ.0$ they are given to 0.1 mm.

Example:

In the dew-point example given above, the computed vapor pressure is 7.18 mm. Entering Table 78 with air temperature 10.4 as side argument, we obtain vapor pressure

6.6 mm. = relative humidity 70

and

7.18 − 6.6 = 0.58 mm. = " " $\frac{60}{10}$ = 6

therefore, vapor pressure

7.18 mm. with $t = 10.4$ *C.* = " " = 76

TABLE 79.

Table 79. *Rate of decrease of vapor pressure with altitude for mountain stations.*

From hygrometric observations made at various mountain stations on the Himalayas, Mount Ararat, Teneriffe, and the Alps, Dr. J. Hann (*Lehrbuch der Meteorologie Dritte Auflage*, S. 230) has deduced the following empirical formula showing the average relation between the vapor

pressure e_0 at a lower station and e the vapor pressure at another station at an altitude h meters above it:

$$\frac{e}{e_0} = 10^{-\frac{h}{6300}}.$$

This is of course an average relation for all times and places from which the actual rate of decrease of vapor pressure in any individual case may widely differ.

Table 79 gives the values of the ratio $\frac{e}{e_0}$ for values of h from 200 to 6000 meters. An additional column gives the equivalent values of h in feet.

REDUCTION OF SNOWFALL MEASUREMENT.

The determination of the water equivalent of snowfall has usually been made by one of two methods: (*a*) by dividing the depth of snow by an arbitrary factor ranging from 8 to 16 for snow of different degrees of compactness; (*b*) by melting the snow and measuring the depth of the resulting water. The first of these methods has always been recognized as incapable of giving reliable results, and the second, although much more accurate, is still open to objection. After extended experience in the trial of both these methods, it has been found that the most accurate and most convenient measurement is that of weighing the collected snow, and then converting the weight into depth in inches. The method is equally applicable whether the snow as it falls is caught in the gage, or a section of the fallen snow is taken by collecting it in an inverted gage.

Table 80. *Depth of water corresponding to the weight of a cylindrical snow core, 2.655 inches in diameter.*

This table is prepared for convenience in making surveys of the snow layer on the ground, particularly in the western mountain sections of the country. The weighing method is the only one found to be practicable. Present Weather Bureau practice is to take out a sample by means of a special tube, whose diameter, 2.655 inches, has been selected by reason of convenience in manipulation and simplicity in relation to the pound. Table 80 gives the depth of water in inches and hundredths corresponding to given weights. The argument is given in hundredths of a pound from 0.01 pound to 2.99 pounds.

Table 81. *Depth of water corresponding to the weight of snow (or rain) collected in an 8-inch gage.*

The table gives the depth to hundredths of an inch, corresponding to the weight of snow or rain collected in a gage having a circular collecting mouth 8 inches in diameter — this being the standard size of gage used throughout the United States.

The argument is given in hundredths of a pound from 0.01 pound to 0.99 pound. When the weight of the collected snow or rain is one pound or more, the depth corresponding to even pounds may be obtained from the equivalent of one pound given in the heading of the table.

Example:

The weight of the snow collected in a gage having a circular collecting mouth 8 inches in diameter is 3.48 pounds. Find the corresponding depth of water.

A weight of 3 lbs. corresponds to a depth of water of 0.5507 × 3, equals	1.65 in.
A weight of 0.48 lbs. corresponds to a depth of water of	0.26
A " " 3.48 " " " " "	1.91 in.

TABLE 82. *Quantity of rainfall corresponding to given depths.* **TABLE 82.**

This table gives for different depths of rainfall in inches over an acre the total quantity of water expressed in cubic inches, cubic feet, gallons, and tons. (See Henry, A. J. "Quantity of Rainfall corresponding to Given Depths." *Monthly Weather Review*, 1898, **26**: 408–09.)

GEODETICAL TABLES.

TABLE 83. *Value of apparent gravity on the earth at sea level.*[1] **TABLE 83.**

The value of apparent gravity on the earth at sea level is given for every twenty minutes of latitude from 5° to 86°, and for degree intervals near the equator and the poles. It is computed to 0.001 dyne from the equation [2]

$$g_\phi = 978.039\ (1 + 0.005294 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$
$$= 980.621\ (1 - 0.002640 \cos^2 \phi + 0.000007 \cos^2 2\phi)$$

in which g_ϕ is the value of the gravity at latitude ϕ.

The second form of the equation is the more convenient for the computation.

TABLE 84. *Relative acceleration of gravity at sea level at different latitudes.* **TABLE 84.**

The formula adopted for the variation with latitude of apparent gravity at sea level is that of the U.S. Coast and Geodetic Survey, given above.

The table gives the values of the ratio $\frac{g_\phi}{g_{45°}}$ to six decimals for every 10′ of latitude from the equator to the pole.

[1] Gravity is here considered in terms of force (expressed in dynes) that is exerted on a mass of one gram rather than its numerical equivalent, acceleration (expressed in centimeters and seconds), for which there is no convenient expression.

[2] See Bowie, William, *Investigations of Gravity and Isostasy.* U.S. Coast and Geodetic Survey, Special Publication No. 40, 1917, page 134.

LENGTH OF A DEGREE OF THE MERIDIAN AND OF ANY PARALLEL.

The dimensions of the earth used in computing lengths of the meridian and of parallels of latitude are those of Clarke's spheroid of 1866.[1] This spheroid undoubtedly represents very closely the true size and shape of the earth, and is the one to which nearly all geodetic work in the United States is now referred.

The values of the constants are as follows:

a, semi-major axis = 20926062 feet; $\log a = 7.3206875$.
b, semi-minor axis = 20855121 feet; $\log b = 7.3192127$.

$$e^2 = \frac{a^2 - b^2}{a^2} = 0.00676866; \qquad \log e^2 = 7.8305030 - 10.$$

With these values for the figure of the earth, the formula for computing any portion of a quadrant of the meridian is

$$\begin{aligned}\text{Meridional distance in feet} &= [5.5618284]\,\Delta\phi \text{ (in degrees)},\\ &- [5.0269880] \cos 2\phi \sin \Delta\phi,\\ &+ [2.0528] \cos 4\phi \sin 2\Delta\phi,\end{aligned}$$

in which $2\phi = \phi_2 + \phi_1$, $\Delta\phi = \phi_2 - \phi_1$; ϕ_1, ϕ_2 = end latitudes of arc.

For the length of 1 degree, the formula becomes:

$$1 \text{ degree of the meridian, in feet} = 364609.9 - 1857.1 \cos 2\phi + 3.94 \cos 4\phi.$$

The length of the parallel is given by the equation

$$1 \text{ degree of the parallel at latitude } \phi\text{, in feet} = 365538.48 \cos\phi - 310.17 \cos 3\phi + 0.39 \cos 5\phi.$$

Table 85. *Length of one degree of the meridian at different latitudes.*

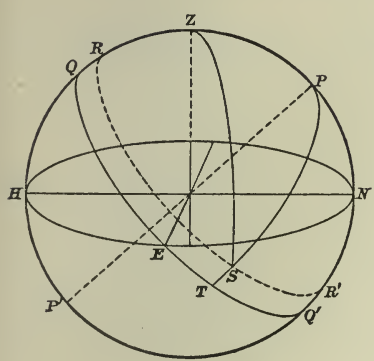
This gives for every degree of latitude the length of one degree of the meridian in statute miles to three decimals, in meters to one decimal, and in geographic miles to three decimals — the geographic mile being here defined to be one minute of arc on the equator. The values in meters are computed from the relation: 1 meter = 39.3700 inches. The tabular values represent the length of an arc of one degree, the middle of which is situated at the corresponding latitude. For example, the length of an arc of one degree of the meridian, whose end latitudes are 29° 30′ and 30° 30′, is 68.879 statute miles.

Table 86. *Length of one degree of the parallel at different latitudes.*

This table is similar to Table 85.

[1] *Comparisons of Standards of Length*, made at the Ordnance Survey Office, Southampton, England, by Capt. A. R. Clarke, R. E., 1866.

TABLE 87. *Duration of sunshine at different latitudes for different values of the sun's declination.*



Let Z be the zenith, and NH the horizon of a place in the northern hemisphere.
P the pole;
QEQ' the celestial equator;
RR' the parallel described by the sun on any given day;
S the position of the sun when its upper limb appears on the horizon;
PN the latitude of the place, ϕ.
ST the sun's declination, δ.
PS the sun's polar distance, $90^\circ - \delta$.
ZS the sun's zenith distance, z.
ZPS the hour angle of the sun from meridian, t.
r the mean horizontal refraction $= 34'$ approximately.
s the mean solar semi-diameter $= 16'$ "

$$z = 90^\circ + r + s = 90^\circ\ 50'$$

In the spherical traingle ZPS, the hour angle ZPS may be computed from the values of the three known sides by the formula

$$\sin \tfrac{1}{2}\, ZPS = \sqrt{\frac{\sin \frac{1}{2}\,(ZS + PZ - PS) \sin \frac{1}{2}\,(ZS + PS - PZ)}{\sin PZ \sin PS}}$$

or

$$\sin \tfrac{1}{2}\, t = \sqrt{\frac{\sin \frac{1}{2}\,(z + \delta - \phi) \sin \frac{1}{2}\,(z - \delta + \phi)}{\cos \phi \cos \delta}}$$

The hour angle t, converted into mean solar time and multiplied by 2 is the duration of sunshine.

Table 87 has been computed for this volume by Prof. Wm. Libbey, Jr. It is a table of double entry with arguments δ and ϕ. For north latitudes northerly declination is considered positive and southerly declination as negative. The table may be used for south latitudes by considering southerly declination as positive and northerly declination as negative.

The top argument is the latitude, given for every 5° from 0° to 40°, for every 2° from 40° to 60°, and for every degree from 60° to 80°.

The side argument is the sun's declination for every 20′ from S 23° 27′ to N 23° 27′.

The duration of sunshine is given in hours and minutes.

To find the duration of sunshine for a given day at a place whose latitude is known, find the declination of the sun at mean noon for that day in the *Nautical Almanac*, and enter the table with the latitude and declination as arguments.

Example:

To find the duration of sunshine, May 18, 1892, in latitude $49^\circ\ 30'$ North.

From the Nautical Almanac, $\delta = 19^\circ\ 43'\ N$.

From the table, with $\delta = 19^\circ\ 43'\ N$ and $\phi = 49^\circ\ 30'$, the duration of sunshine is found to be $15^h\ 31^m$.

TABLE 88. *Declination of the sun for the year* 1899.

This table is an auxiliary to Table 87, and gives the declination of the sun for every third day of the year 1899. These declinations may be used as approximate values for the corresponding dates of other years when the exact declination cannot readily be obtained. Thus, in the preceding example, the declination for May 18, 1892, may be taken as approximately the same as that for the same date in 1899, viz. $19^\circ\ 37'$.

THE DURATION OF TWILIGHT.

A review of the literature [1] indicates that from an early date *astronomical* twilight has been considered to end in the evening and begin in the morning when the true position of the sun's center is 18° below the horizon. At this time stars of the sixth magnitude are visible near the zenith, and generally there is no trace on the horizon of the twilight glow.

It also appears that *civil* twilight ends in the evening and begins in the morning when the true position of the sun's center is 6° below the horizon. At this time stars and planets of the first magnitude are just visible. In the evening the first purple light has just disappeared, and darkness compels the suspension of outdoor work unless artificial lighting is provided. In the morning the first purple light is beginning to be visible, and the illumination is sufficient for the resumption of outdoor occupations.

Some confusion has arisen in the computation of tables of the duration of both astronomical and civil twilight, due to the fact that in some instances the time of sunrise or sunset has been considered to be that instant when the *center* of the sun is on the true horizon; in others, when its center *appears* to be on the true horizon; and in still others when the *upper limb* of the sun appears to coincide with the true horizon. In the United States this latter is regarded as defining the time of sunrise and sunset.

In the tables here presented the duration of astronomical twilight is the interval between sunrise or sunset, according to this latter definition, and the instant the true position of the sun's center is 18° below the horizon. Likewise, the duration of civil twilight is the interval from sunrise or sunset to the instant the true position of the sun's center is 6° below the horizon.

[1] Kimball, Herbert H. "Duration and Intensity of Twilight," *Monthly Weather Review*, 1916, 44: 614–620.

The computations may be made from the equation

$$\cos t = \frac{\sin a - \sin \phi \sin \delta}{\cos \phi \cos \delta}$$

where t is the sun's hour angle from the meridian, a is the sun's altitude, considered minus below the horizon, δ is the solar declination, and ϕ is the latitude of the place of observation.

The solar declinations employed are those given in the *American Ephemeris and Nautical Almanac*, 1899, pp. 377–384, Solar Ephemeris for Washington.

The atmospheric refraction with the sun on the horizon has been assumed to be 34′, and 16′ has been allowed for the sun's semi-diameter, so that at the instant of sunrise or sunset, as defined above, the true position of the sun's center is about 50′ below the horizon. The difference between this value of t and its value with the sun 6° and 18° below the horizon gives, respectively, the duration of civil and astronomical twilight.

The computations have been simplified by the use of Ball's Altitude Tables,[1] from which the value of t has been determined for true altitudes of the sun of − 50′, − 6°, and − 18°.

TABLE 89. *Duration of astronomical twilight.* TABLE 89.

The duration of astronomical twilight is given to the nearest minute for the 1st, 11th, and 21st day of each month for north latitudes, 0°, 10°, 20°, 25°, and at 2° intervals from 30° to 50°, inclusive. The absence of data for latitude 50° from June 1 to July 11, inclusive, indicates that between these dates at this latitude astronomical twilight continues throughout the night.

TABLE 90. *Duration of civil twilight.* TABLE 90.

The duration of civil twilight is given to the nearest minute for the 1st, 11th and 21st day of each month for north latitudes 0°, 10°, 20°, 25°, and at 2° intervals from 30° to 50°, inclusive.

RELATIVE INTENSITY OF SOLAR RADIATION AT DIFFERENT LATITUDES.

TABLE 91.

TABLE 91. *Mean intensity for 24 hours of solar radiation on a horizontal surface at the top of the atmosphere.*

This table is that of Prof. Wm. Ferrel, published in the *Annual Report of the Chief Signal Officer*, 1885, Part 2, p. 427, and computed from formulæ and constants given in Chapter II of the above publication, pages 75 to 82. It gives the mean intensity, J, for 24 hours of solar radiation received by a horizontal surface at the top of the atmosphere, in terms of the mean solar

[1] Ball, Frederick. *Altitude Tables for lat. 31° to 60°.* London, 1907; [same] for lat. 0° to 30°, London, 1910.

constant A_0, for each tenth parallel of latitude of the northern hemisphere, and for the first and sixteenth day of each month; also the values of the solar constant A in terms of A_0, and the longitude of the sun for the given dates.

Table 92. *Relative amounts of solar radiation received on a horizontal surface during the year at different latitudes.*

The second column of this table is obtained from the last line of Table 91 by multiplying by 1440, the number of minutes in 24 hours. It therefore gives the average daily amount of radiation that would be received from the sun on a horizontal surface at the surface of the earth if none were absorbed or scattered by the atmosphere, expressed in terms of the mean solar constant. The following columns give similar data, except that the atmospheric transmission coefficient is assumed to be 0.9, 0.8, 0.7 and 0.6, respectively, and have been computed by utilizing Angot's work (*Recherches théoretiques sur la distribution de la chaleur à la surface du globe*, par M. Alfred Angot, *Annales du Bureau Central Météorologique de France*, Année 1883. v. 1. B 121–B 169), which leads to practically the same values as Ferrel's when expressed in the same units.

The vertical argument of the table is for 10° intervals of latitude from the equator to the north pole, inclusive.

Table 93. *Air mass, m, corresponding to different zenith distances of the sun.*

For homogenous rays, the intensity of solar energy after passing through an air mass, m, is expressed by the equation $I = I_0 a^m$, where I_0 is the intensity before absorption, a is the atmospheric transmission coefficient, or the proportion of the energy transmitted by unit air mass, and m is the air mass passed through. If we take for unit air mass the atmospheric mass passed through by the rays when the sun is in the zenith, then for zenith distances of the sun less than 80° the air mass is nearly proportional to the secant of the sun's zenith distance. In general, the secant gives air masses that are too high by an increasing amount as the zenith distance of the sun increases.

The equation by which air masses are sometimes computed is

$$m = \frac{\textit{atmospheric refraction}}{K \sin Z}$$

where Z is the sun's zenith distance and K is a constant. The uncertain factor in this equation is the atmospheric refraction. Table 93 gives values of m computed by Bemporad (*Rend. Acc. Lincei.*, Roma, Ser. 5, V. 16, 2 Sem. 1907, pp. 66–71) from the above formula, using for K the value 58″.36. The argument is for each degree of Z from 20° to 89°, with values of m added for $Z = 0°$, 10°, and 15°. The values of m are given to two decimal places.

TABLE 94. *Relative illumination intensities.* **TABLE 94.**

The table gives illumination intensities in foot-candles for zenithal sun, sky at sunset, sky at end of civil twilight, zenithal full moon, quarter moon, and starlight, and the ratio of these intensities to the illumination from the zenithal full moon. For the sources of the data see Kimball, Herbert H., "Duration and Intensity of Twilight," *Monthly Weather Review*, 1916, 44: 614–620.

MISCELLANEOUS TABLES.

WEIGHT IN GRAMS OF A CUBIC CENTIMETER OF AIR.

The following tables (95 to 100) give the factors for computing the weight of a cubic centimeter of air at different temperatures, humidities and pressures.

$$\delta = \frac{0.00129305}{1 + 0.00367\,t}\left(\frac{B - 0.378\,e}{760}\right)$$

in which δ is the weight of a cubic centimeter of air expressed in grams, under the standard value of gravity (g = 980.665)

B is the atmospheric pressure in millimeters, under standard gravity;

e is the pressure of aqueous vapor in millimeters, under standard gravity;

t is the temperature in Centigrade degrees.

For dry atmospheric air (containing 0.0004 of its weight of carbonic acid) at a pressure of 760 mm. and temperature 0° *C.*, the absolute density, or the weight of one cubic centimeter, is 0.00129305 gram. (International Bureau of Weights and Measures. *Travaux et Mémoires*, *t.* I, p. A 54.) See also these Tables, p. xli.

The weight of a cubic centimeter may also be written as follows:

$$\delta = \frac{0.00129305}{1 + 0.0020389\,(t - 32°)}\left(\frac{B - 0.378\,e}{29.921}\right)$$

where δ is defined as before, but B and e are expressed in inches and t in Fahrenheit degrees. Thus by the use of tables based on these two formulæ, lines of equal atmospheric density may be drawn for the whole world, no matter whether the original observations are in English or metric measures.

ENGLISH MEASURES. **TABLES 95, 96, 97.**

TABLE 95. *Temperature Term.*

This table gives the values and logarithms of the expression

$$\delta_{t,\,29.921} = \frac{0.00129305}{1 + 0.0020389\,(t - 32°)}$$

for values of t extending from $-$ 45° *F.* to + 140° *F.*, the intervals between 0° *F.* and 110° *F.* being 1°.

The tabular values are given to five significant figures.

Table 96. *Term for humidity; auxiliary to Table* 95.

Table 97. *Humidity and pressure term.* $\dfrac{h}{29.921} = \dfrac{B - 0.378\,e}{29.921}$.

Table 96 gives values of $0.378\,e$ to three decimal places as an aid to the use of Table 97. The argument is the dew-point given for every degree from $-60°$ *F.* to $+140°$ *F.* The second column gives the corresponding values of the vapor pressure (e) derived from Tables 69 and 70.

Table 97 gives values and logarithms of $\dfrac{h}{29.921} = \dfrac{B - 0.378\,e}{29.921}$ for values of h extending from 10.0 to 31.7 inches. The logarithms are given to five significant figures and the corresponding numbers to four decimals.

Example:

The air temperature is 68° *F.*, the pressure is 29.36 inches and the dew-point 51° *F.* Find the logarithm of the density.

Table 95, for $t = 68°$ *F.*, gives	7.08085 − 10
Table 96, for dew-point 51°, gives $0.378\,e = 0.142$ inch,	
Table 97, for $h = B - 0.378\,e = 29.36 - 0.14 = 29.22$, gives	9.98941 − 10
	30
Logarithm of density =	7.07056 − 10

METRIC MEASURES.

Table 98. *Temperature term.*

This table gives values and logarithms of the expression

$$\delta_{t,\,760} = \frac{0.00129305}{1 + 0.00367\,t}$$

for values of t extending from $-34°$ *C.* to $+69°$ *C.* The tabular values are given to five significant figures.

Table 99. *Term for humidity; auxiliary to Table* 100.

Table 100. *Humidity and pressure terms.* $\dfrac{h}{760} = \dfrac{B - 0.378\,e}{760}$.

Table 99 gives the values of $0.378\,e$ to hundredths of a millimeter for dew-points extending from $-50°$ *C.* to $+60°$ *C.* Above $-25°$ *C.* the interval is one degree. The values of the vapor pressure, e, corresponding to these dew-points, given in the second column, are taken from tables 71 and 72.

Table 100 gives values and logarithms of $\dfrac{h}{760} = \dfrac{B - 0.378\,e}{760}$ for values of h extending from 300 to 799 mm. The atmospheric pressure B is the barometer reading corrected for gravity and $0.378\,e$ is the term for

humidity obtained from Table 99. The logarithms are given to five significant figures and the corresponding numbers to four decimal places.

TABLE 101. *Atmospheric water-vapor lines in the visible spectrum.* TABLE 101.

Table 101, prepared by the Astrophysical Observatory at Washington, gives a summary of lines in Rowland's "Preliminary Table of Solar Spectrum Wave Lengths," recorded as of atmospheric water vapor origin. There are more than 400 such lines in Rowland's table, but an abridgment is here made as follows:

Only lines of intensity "1" or greater are here separately given, but the total number and average intensity of the fainter lines lying between these are inserted. Rowland's scale of intensities is such that a line of intensity "1" is "just clearly visible" on Rowland's map; the H and K lines are of intensity, 1,000; D_1 (the sodium line of greater wave length), 20; C., 40. "Lines more and more difficult to see" are distinguished by 0, 00, 000, and 0000.

TABLE 102. *Absorption by atmospheric water-vapor bands in the infra-red.* TABLE 102.

The values of Table 102 relate to the transmission of energy in the minima of various water-vapor bands, when there is 1 cm. of precipitable water in the path through the air. For other amounts of water-vapor, the depths of these minima may be taken as equal to a^δ, where a is the coefficient taken from the third column of Table 102 and δ is the amount of precipitable water in the path. For average conditions in the transmission of radiation through the atmosphere, δ may be determined by the modification of Hann's formula $\delta = 2.0\, e \; sec.\, Z$, where e is the vapor pressure in cms. as determined by wet and dry thermometers and Z is the angle which the path makes with the vertical.

For the use of the transmissions observed in such bands for the inverse process of determining the amount of water-vapor in the atmosphere, see Fowle, *Astrophysical Journal*, 35, p. 149, 1912; 37, p. 359, 1913.

TABLE 103. *Transmission percentages of radiation through moist air.* TABLE 103.

The values of Table 103 will be of use when the transmission of energy through the atmosphere containing a known amount of water-vapor is under consideration. An approximate value for the energy transmitted may be had if the amount of energy from the source between the wave-lengths of the first column is known and is multiplied by the corresponding transmission coefficients of the subsequent columns of the table. The table is compiled from Fowle, "Water-vapor Transparency," *Smithsonian Miscellaneous Collections*, 68, No. 8, 1917; see also, Fowle, "The Transparency of Aqueous Vapor," *Astrophysical Journal*, 42, p. 394, 1915.

TABLE 104. *International meteorological symbols.* TABLE 104.

The information under this heading has been compiled for the present

edition by the librarian of the United States Weather Bureau, and represents current practice in the use of the symbols approved by the International Meteorological Organization. For further information on the subject of meteorological symbols, see *Monthly Weather Review* (Wash., D.C.), May, 1916, pp. 265–274.

Table 105. *International cloud classification.*

The text under this heading is condensed from the International Cloud Atlas, 2d edition, Paris, 1910.

Table 106. *Beaufort weather notation.*

This table has been revised in the library of the United States Weather Bureau, and represents the current practice of American and British observers in the use of the Beaufort letters.

Table 107. *List of meteorological stations.*

This list has been extensively revised in the library of the Weather Bureau, and has been enlarged to include all the stations for which data appear in the "Réseau Mondial" of the British Meteorological Office for 1912 (published 1917). The stations of the Réseau Mondial were selected to represent, so far as available data permitted, the meteorology of all land areas of the globe, on the basis of two, or in some cases three, stations for each ten-degree square of latitude and longitude.

No attempt has been made in this edition of the Smithsonian Tables to indicate the "order" of the several stations, according to the definitions adopted at the Vienna Congress of 1873; as, owing to the present widespread use of self-recording instruments, the old distinction between first and second order stations has lost much of its importance.

Several stations included in the list are no longer in operation. Data concerning the locations and altitudes of these stations are still valuable, in view of the frequent use made of their records in meteorological and climatological studies.

In general, the spellings of names are those most frequently met with in existing compilations of meteorological data, without regard to the practice of English-speaking countries. In a majority of cases the native orthography has been followed.

THERMOMETRICAL TABLES

TABLE 1.

APPROXIMATE ABSOLUTE, CENTIGRADE, FAHRENHEIT, AND REAUMUR SCALES.

Conversion Formulæ for Approximate Absolute ($A.A$), Centigrade (C), Fahrenheit (F), and Reaumur (R) Scales.

$$A.A = 5/9\ (F - 32) + 273 = C + 273 = 5/4\,R + 273$$

$$C = 5/9\ (F - 32) = 5/4\,R = A.A - 273 = \tfrac{1}{2}\,(F - 32)\left(1 + \frac{1}{10} + \frac{1}{100} + \frac{1}{1000} + \right)$$

$$F = 9/5\,C + 32 = 9/4\,R + 32 = 9/5\,(A.A - 273) + 32 = 2\,C\left(1 - \frac{1}{10}\right) + 32$$

$$R = 4/9\ (F - 32) = 4/5\,C = 4/5\,(A.A - 273)$$

PROPORTIONAL PARTS.

C / $A.A$	1	2	3	4	5	6	7	8	9
F	1.8	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.2
R	.8	1.6	2.4	3.2	4.0	4.8	5.6	6.4	7.2

F	1	2	3	4	5	6	7	8	9
C / $A.A$	.55*	1.11*	1.66*	2.22*	2.77*	3.33*	3.88*	4.44*	5.00*
R	.44*	.88*	1.33*	1.77*	2.22*	2.66*	3.11*	3.55*	4.00*

R	1	2	3	4	5	6	7	8	9
C / $A.A$	1.25	2.50	3.75	5.00	6.25	7.50	8.75	10.00	11.25
F	2.25	4.50	6.75	9.00	11.25	13.50	15.75	18.00	20.25

* These last figures repeated indefinitely.

A.A.	C.	F.	R.	A.A.	C.	F.	R.	A.A.	C.	F.	R.
375°	102°	215°.6	81°.6	350°	77°	170°.6	61°.6	325°	52°	125°.6	41°.6
374	101	213.8	80.8	349	76	168.8	60.8	324	51	123.8	40.8
373	100	212.0	80.0	348	75	167.0	60.0	323	50	122.0	40.0
372	99	210.2	79.2	347	74	165.2	59.2	322	49	120.2	39.2
371	98	208.4	78.4	346	73	163.4	58.4	321	48	118.4	38.4
370	97	206.6	77.6	345	72	161.6	57.6	320	47	116.6	37.6
369	96	204.8	76.8	344	71	159.8	56.8	319	46	114.8	36.8
368	95	203.0	76.0	343	70	158.0	56.0	318	45	113.0	36.0
367	94	201.2	75.2	342	69	156.2	55.2	317	44	111.2	35.2
366	93	199.4	74.4	341	68	154.4	54.4	316	43	109.4	34.4
365	92	197.6	73.6	340	67	152.6	53.6	315	42	107.6	33.6
364	91	195.8	72.8	339	66	150.8	52.8	314	41	105.8	32.8
363	90	194.0	72.0	338	65	149.0	52.0	313	40	104.0	32.0
362	89	192.2	71.2	337	64	147.2	51.2	312	39	102.2	31.2
361	88	190.4	70.4	336	63	145.4	50.4	311	38	100.4	30.4
360	87	188.6	69.6	335	62	143.6	49.6	310	37	98.6	29.6
359	86	186.8	68.8	334	61	141.8	48.8	309	36	96.8	28.8
358	85	185.0	68.0	333	60	140.0	48.0	308	35	95.0	28.0
357	84	183.2	67.2	332	59	138.2	47.2	307	34	93.2	27.2
356	83	181.4	66.4	331	58	136.4	46.4	306	33	91.4	26.4
355	82	179.6	65.6	330	57	134.6	45.6	305	32	89.6	25.6
354	81	177.8	64.8	329	56	132.8	44.8	304	31	87.8	24.8
353	80	176.0	64.0	328	55	131.0	44.0	303	30	86.0	24.0
352	79	174.2	63.2	327	54	129.2	43.2	302	29	84.2	23.2
351	78	172.4	62.4	326	53	127.4	42.4	301	28	82.4	22.4
350	77	170.6	61.6	325	52	125.6	41.6	300	27	80.6	21.6
A.A.	C.	F.	R.	A.A.	C.	F.	R.	A.A.	C.	F.	R.

APPROXIMATE ABSOLUTE, CENTIGRADE, FAHRENHEIT, AND REAUMUR SCALES.

A.A.	C.	F.	R.	A.A.	C.	F.	R.	A.A.	C.	F.	R.
300°	27°	80°.6	21°.6	250°	−23°	− 9°.4	−18°.4	200°	−73°	− 99°.4	−58°.4
299	26	78.8	20.8	249	24	11.2	19.2	199	74	101.2	59.2
298	25	77.0	20.0	248	25	13.0	20.0	198	75	103.0	60.0
297	24	75.2	19.2	247	26	14.8	20.8	197	76	104.8	60.8
296	23	73.4	18.4	246	27	16.6	21.6	196	77	106.6	61.6
295	22	71.6	17.6	245	−28	−18.4	−22.4	195	−78	−108.4	−62.4
294	21	69.8	16.8	244	29	20.2	23.2	194	79	110.2	63.2
293	20	68.0	16.0	243	30	22.0	24.0	193	80	112.0	64.0
292	19	66.2	15.2	242	31	23.8	24.8	192	81	113.8	64.8
291	18	64.4	14.4	241	32	25.6	25.6	191	82	115.6	65.6
290	17	62.6	13.6	240	−33	−27.4	−26.4	190	−83	−117.4	−66.4
289	16	60.8	12.8	239	34	29.2	27.2	189	84	119.2	67.2
288	15	59.0	12.0	238	35	31.0	28.0	188	85	121.0	68.0
287	14	57.2	11.2	237	36	32.8	28.8	187	86	122.8	68.8
286	13	55.4	10.4	236	37	34.6	29.6	186	87	124.6	69.6
285	12	53.6	9.6	235	−38	−36.4	−30.4	185	−88	−126.4	−70.4
284	11	51.8	8.8	234	39	38.2	31.2	184	89	128.2	71.2
283	10	50.0	8.0	233	40	40.0	32.0	183	90	130.0	72.0
282	9	48.2	7.2	232	41	41.8	32.8	182	91	131.8	72.8
281	8	46.4	6.4	231	42	43.6	33.6	181	92	133.6	73.6
280	7	44.6	5.6	230	−43	−45.4	−34.4	180	−93	−135.4	−74.4
279	6	42.8	4.8	229	44	47.2	35.2	179	94	137.2	75.2
278	5	41.0	4.0	228	45	49.0	36.0	178	95	139.0	76.0
277	4	39.2	3.2	227	46	50.8	36.8	177	96	140.8	76.8
276	3	37.4	2.4	226	47	52.6	37.6	176	97	142.6	77.6
275	+ 2	35.6	+ 1.6	225	−48	−54.4	−38.4	175	−98	−144.4	−78.4
274	+ 1	33.8	+ 0.8	224	49	56.2	39.2	174	99	146.2	79.2
273	± 0	32.0	± 0.0	223	50	58.0	40.0	173	100	148.0	80.0
272	− 1	30.2	− 0.8	222	51	59.8	40.8	172	101	149.8	80.8
271	− 2	28.4	− 1.6	221	52	61.6	41.6	171	102	151.6	81.6
270	− 3	26.6	− 2.4	220	−53	−63.4	−42.4	170	−103	−153.4	−82 4
269	4	24.8	3.2	219	54	65.2	43.2	169	104	155.2	83.2
268	5	23.0	4.0	218	55	67.0	44.0	168	105	157.0	84.0
267	6	21.2	4.8	217	56	68.8	44.8	167	106	158.8	84.8
266	7	19.4	5.6	216	57	70.6	45.6	166	107	160.6	85.6
265	− 8	17.6	− 6.4	215	−58	−72.4	−46.4	165	−108	−162.4	−86.4
264	9	15.8	7.2	214	59	74.2	47.2	164	109	164.2	87.2
263	10	14.0	8.0	213	60	76.0	48.0	163	110	166.0	88.0
262	11	12.2	8.8	212	61	77.8	48.8	162	111	167.8	88.8
261	12	10.4	9.6	211	62	79.6	49.6	161	112	169.6	89.6
260	−13	8.6	−10.4	210	−63	−81.4	−50.4	160	−113	−171.4	−90.4
259	14	6.8	11.2	209	64	83.2	51.2	159	114	173.2	91.2
258	15	5.0	12.0	208	65	85.0	52.0	158	115	175.0	92.0
257	16	3.2	12.8	207	66	86.8	52.8	157	116	176.8	92.8
256	17	+ 1.4	13.6	206	67	88.6	53.6	156	117	178.6	93.6
255	−18	−0.4	−14.4	205	−68	−90.4	−54.4	155	−118	−180.4	−94.4
254	19	2.2	15.2	204	69	92.2	55.2	154	119	182.2	95.2
253	20	4.0	16.0	203	70	94.0	56.0	153	120	184.0	96.0
252	21	5.8	16.8	202	71	95.8	56.8	152	121	185.8	96.8
251	22	7.6	17.6	201	72	97.6	57.6	151	122	187.6	97.6
250	−23	−9.4	−18.4	200	−73	−99.4	−58.4	150	−123	−189.4	−98.4
A.A.	C.	F.	R.	A.A.	C.	F.	R.	A.A.	C.	F.	R.

TABLE 1

APPROXIMATE ABSOLUTE, CENTIGRADE, FAHRENHEIT, AND REAUMUR SCALES.

A.A.	C.	F.	R.	A.A.	C.	F.	R.	A.A.	C.	F.	R.
150°	−123°	−189°.4	−98°.4	100°	−173°	−279°.4	−138°.4	50°	−223°	−369°.4	−178°.4
149	124	191.2	99.2	99	174	281.2	139.2	49	224	371.2	179.2
148	125	193.0	100.0	98	175	283.0	140.0	48	225	373.0	180.0
147	126	194.8	100.8	97	176	284.8	140.8	47	226	374.8	180.8
146	127	196.6	101.6	96	177	286.6	141.6	46	227	376.6	181.6
145	−128	−198.4	−102.4	95	−178	−288.4	−142.4	45	−228	−378.4	−182.4
144	129	200.2	103.2	94	179	290.2	143.2	44	229	380.2	183.2
143	130	202.0	104.0	93	180	292.0	144.0	43	230	382.0	184.0
142	131	203.8	104.8	92	181	293.8	144.8	42	231	383.8	184.8
141	132	205.6	105.6	91	182	295.6	145.6	41	232	385.6	185.6
140	−133	−207.4	−106.4	90	−183	−297.4	−146.4	40	−233	−387.4	−186.4
139	134	209.2	107.2	89	184	299.2	147.2	39	234	389.2	187.2
138	135	211.0	108.0	88	185	301.0	148.0	38	235	391.0	188.0
137	136	212.8	108.8	87	186	302.8	148.8	37	236	392.8	188.8
136	137	214.6	109.6	86	187	304.6	149.6	36	237	394.6	189.6
135	−138	−216.4	−110.4	85	−188	−306.4	−150.4	35	−238	−396.4	−190.4
134	139	218.2	111.2	84	189	308.2	151.2	34	239	398.2	191.2
133	140	220.0	112.0	83	190	310.0	152.0	33	240	400.0	192.0
132	141	221.8	112.8	82	191	311.8	152.8	32	241	401.8	192.8
131	142	223.6	113.6	81	192	313.6	153.6	31	242	403.6	193.6
130	−143	−225.4	−114.4	80	−193	−315.4	−154.4	30	−243	−405.4	−194.4
129	144	227.2	115.2	79	194	317.2	155.2	29	244	407.2	195.2
128	145	229.0	116.0	78	195	319.0	156.0	28	245	409.0	196.0
127	146	230.8	116.8	77	196	320.8	156.8	27	246	410.8	196.8
126	147	232.6	117.6	76	197	322.6	157.6	26	247	412.6	197.6
125	−148	−234.4	−118.4	75	−198	−324.4	−158.4	25	−248	−414.4	−198.4
124	149	236.2	119.2	74	199	326.2	159.2	24	249	416.2	199.2
123	150	238.0	120.0	73	200	328.0	160.0	23	250	418.0	200.0
122	151	239.8	120.8	72	201	329.8	160.8	22	251	419.8	200.8
121	152	241.6	121.6	71	202	331.6	161.6	21	252	421.6	201.6
120	−153	−243.4	−122.4	70	−203	−333.4	−162.4	20	−253	−423.4	−202.4
119	154	245.2	123.2	69	204	335.2	163.2	19	254	425.2	203.2
118	155	247.0	124.0	68	205	337.0	164.0	18	255	427.0	204.0
117	156	248.8	124.8	67	206	338.8	164.8	17	256	428.8	204.8
116	157	250.6	125.6	66	207	340.6	165.6	16	257	430.6	205.6
115	−158	−252.4	−126.4	65	−208	−342.4	−166.4	15	−258	−432.4	−206.4
114	159	254.2	127.2	64	209	344.2	167.2	14	259	434.2	207.2
113	160	256.0	128.0	63	210	346.0	168.0	13	260	436.0	208.0
112	161	257.8	128.8	62	211	347.8	168.8	12	261	437.8	208.8
111	162	259.6	129.6	61	212	349.6	169.6	11	262	439.6	209.6
110	−163	−261.4	−130.4	60	−213	−351.4	−170.4	10	−263	−441.4	−210.4
109	164	263.2	131.2	59	214	353.2	171.2	9	264	443.2	211.2
108	165	265.0	132.0	58	215	355.0	172.0	8	265	445.0	212.0
107	166	266.8	132.8	57	216	356.8	172.8	7	266	446.8	212.8
106	167	268.6	133.6	56	217	358.6	173.6	6	267	448.6	213.6
105	−168	−270.4	−134.4	55	−218	−360.4	−174.4	5	−268	−450.4	−214.4
104	169	272.2	135.2	54	219	362.2	175.2	4	269	452.2	215.2
103	170	274.0	136.0	53	220	364.0	176.0	3	270	454.0	216.0
102	171	275.8	136.8	52	221	365.8	176.8	2	271	455.8	216.8
101	172	277.6	137.6	51	222	367.6	177.6	1	272	457.6	217.6
100	−173	−279.4	−138.4	50	−223	−369.4	−178.4	0	−273	−459.4	−218.4
A.A.	C.	F.	R.	A.A.	C.	F.	R.	A.A.	C.	F.	R.

FAHRENHEIT SCALE TO CENTIGRADE.

Fahrenheit.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	C.	C.	C.	C.	C.	C.	C.	C.	C.	C.
+130°	+54°.44	+54°.50	+54°.56	+54°.61	+54°.67	+54°.72	+54°.78	+54°.83	+54°.89	+54°.94
129	53.89	53.94	54.00	54.06	54.11	54.17	54.22	54.28	54.33	54.39
128	53.33	53.39	53.44	53.50	53.56	53.61	53.67	53.72	53.78	53.83
127	52.78	52.83	52.89	52.94	53.00	53.06	53.11	53.17	53.22	53.28
126	52.22	52.28	52.33	52.39	52.44	52.50	52.56	52.61	52.67	52.72
+125	+51.67	+51.72	+51.78	+51.83	+51.89	+51.94	+52.00	+52.06	+52.11	+52.17
124	51.11	51.17	51.22	51.28	51.33	51.39	51.44	51.50	51.56	51.61
123	50.56	50.61	50.67	50.72	50.78	50.83	50.89	50.94	51.00	51.06
122	50.00	50.06	50.11	50.17	50.22	50.28	50.33	50.39	50.44	50.50
121	49.44	49.50	49.56	49.61	49.67	49.72	49.78	49.83	49.89	49.94
+120	+48.89	+48.94	+49.00	+49.06	+49.11	+49.17	+49.22	+49.28	+49.33	+49.39
119	48.33	48.39	48.44	48.50	48.56	48.61	48.67	48.72	48.78	48.83
118	47.78	47.83	47.89	47.94	48.00	48.06	48.11	48.17	48.22	48.28
117	47.22	47.28	47.33	47.39	47.44	47.50	47.56	47.61	47.67	47.72
116	46.67	46.72	46.78	46.83	46.89	46.94	47.00	47.06	47.11	47.17
+115	+46.11	+46.17	+46.22	+46.28	+46.33	+46.39	+46.44	+46.50	+46.56	+46.61
114	45.56	45.61	45.67	45.72	45.78	45.83	45.89	45.94	46.00	46.06
113	45.00	45.06	45.11	45.17	45.22	45.28	45.33	45.39	45.44	45.50
112	44.44	44.50	44.56	44.61	44.67	44.72	44.78	44.83	44.89	44.94
111	43.89	43.94	44.00	44.06	44.11	44.17	44.22	44.28	44.33	44.39
+110	+43.33	+43.39	+43.44	+43.50	+43.56	+43.61	+43.67	+43.72	+43.78	+43.83
109	42.78	42.83	42.89	42.94	43.00	43.06	43.11	43.17	43.22	43.28
108	42.22	42.28	42.33	42.39	42.44	42.50	42.56	42.61	42.67	42.72
107	41.67	41.72	41.78	41.83	41.89	41.94	42.00	42.06	42.11	42.17
106	41.11	41.17	41.22	41.28	41.33	41.39	41.44	41.50	41.56	41.61
+105	+40.56	+40.61	+40.67	+40.72	+40.78	+40.83	+40.89	+40.94	+41.00	+41.06
104	40.00	40.06	40.11	40.17	40.22	40.28	40.33	40.39	40.44	40.50
103	39.44	39.50	39.56	39.61	39.67	39.72	39.78	39.83	39.89	39.94
102	38.89	38.94	39.00	39.06	39.11	39.17	39.22	39.28	39.33	39.39
101	38.33	38.39	38.44	38.50	38.56	38.61	38.67	38.72	38.78	38.83
+100	+37.78	+37.83	+37.89	+37.94	+38.00	+38.06	+38.11	+38.17	+38.22	+38.28
99	37.22	37.28	37.33	37.39	37.44	37.50	37.56	37.61	37.67	37.72
98	36.67	36.72	36.78	36.83	36.89	36.94	37.00	37.06	37.11	37.17
97	36.11	36.17	36.22	36.28	36.33	36.39	36.44	36.50	36.56	36.61
96	35.56	35.61	35.67	35.72	35.78	35.83	35.89	35.94	36.00	36.06
+95	+35.00	+35.06	+35.11	+35.17	+35.22	+35.28	+35.33	+35.39	+35.44	+35.50
94	34.44	34.50	34.56	34.61	34.67	34.72	34.78	34.83	34.89	34.94
93	33.89	33.94	34.00	34.06	34.11	34.17	34.22	34.28	34.33	34.39
92	33.33	33.39	33.44	33.50	33.56	33.61	33.67	33.72	33.78	33.83
91	32.78	32.83	32.89	32.94	33.00	33.06	33.11	33.17	33.22	33.28
+90	+32.22	+32.28	+32.33	+32.39	+32.44	+32.50	+32.56	+32.61	+32.67	+32.72
89	31.67	31.72	31.78	31.83	31.89	31.94	32.00	32.06	32.11	33.17
88	31.11	31.17	31.22	31.28	31.33	31.39	31.44	31.50	31.56	31.61
87	30.56	30.61	30.67	30.72	30.78	30.83	30.89	30.94	31.00	31.06
86	30.00	30.06	30.11	30.17	30.22	30.28	30.33	30.39	30.44	30.50
+85	+29.44	+29.50	+29.56	+29.61	+29.67	+29.72	+29.78	+29.83	+29.89	+29.94
84	28.89	28.94	29.00	29.06	29.11	29.17	29.22	29.28	29.33	29.39
83	28.33	28.39	28.44	28.50	28.56	28.61	28.67	28.72	28.78	28.83
82	27.78	27.83	27.89	27.94	28.00	28.06	28.11	28.17	28.22	28.28
81	27.22	27.28	27.33	27.39	27.44	27.50	27.56	27.61	27.67	27.72
+80	+26.67	+26.72	+26.78	+26.83	+26.89	+26.94	+27.00	+27.06	+27.11	+27.17
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9

FAHRENHEIT SCALE TO CENTIGRADE.

Fahrenheit.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	C.	C.	C.	C.	C.	C.	C.	C.	C.	C.
+80°	+26°.67	+26°.72	+26°.78	+26°.83	+26°.89	+26°.94	+27°.00	+27°.06	+27°.11	+27°.17
79	26.11	26.17	26.22	26.28	26.33	26.39	26.44	26.50	26.56	26.61
78	25.56	25.61	25.67	25.72	25.78	25.83	25.89	25.94	26.00	26.06
77	25.00	25.06	25.11	25.17	25.22	25.28	25.33	25.39	25.44	25.50
76	24.44	24.50	24.56	24.61	24.67	24.72	24.78	24.83	24.89	24.94
+75	+23.89	+23.94	+24.00	+24.06	+24.11	+24.17	+24.22	+24.28	+24.33	+24.39
74	23.33	23.39	23.44	23.50	23.56	23.61	23.67	23.72	23.78	23.83
73	22.78	22.83	22.89	22.94	23.00	23.06	23.11	23.17	23.22	23.28
72	22.22	22.28	22.33	22.39	22.44	22.50	22.56	22.61	22.67	22.72
71	21.67	21.72	21.78	21.83	21.89	21.94	22.00	22.06	22.11	22.17
+70	+21.11	+21.17	+21.22	+21.28	+21.33	+21.39	+21.44	+21.50	+21.56	+21.61
69	20.56	20.61	20.67	20.72	20.78	20.83	20.89	20.94	21.00	21.06
68	20.00	20.06	20.11	20.17	20.22	20.28	20.33	20.39	20.44	20.50
67	19.44	19.50	19.56	19.61	19.67	19.72	19.78	19.83	19.89	19.94
66	18.89	18.94	19.00	19.06	19.11	19.17	19.22	19.28	19.33	19.39
+65	+18.33	+18.39	+18.44	+18.50	+18.56	+18.61	+18.67	+18.72	+18.78	+18.83
64	17.78	17.83	17.89	17.94	18.00	18.06	18.11	18.17	18.22	18.28
63	17.22	17.28	17.33	17.39	17.44	17.50	17.56	17.61	17.67	17.72
62	16.67	16.72	16.78	16.83	16.89	16.94	17.00	17.06	17.11	17.17
61	16.11	16.17	16.22	16.28	16.33	16.39	16.44	16.50	16.56	16.61
+60	+15.56	+15.61	+15.67	+15.72	+15.78	+15.83	+15.89	+15.94	+16.00	+16.06
59	15.00	15.06	15.11	15.17	15.22	15.28	15.33	15.39	15.44	15.50
58	14.44	14.50	14.56	14.61	14.67	14.72	14.78	14.83	14.89	14.94
57	13.89	13.94	14.00	14.06	14.11	14.17	14.22	14.28	14.33	14.39
56	13.33	13.39	13.44	13.50	13.56	13.61	13.67	13.72	13.78	13.83
+55	+12.78	+12.83	+12.89	+12.94	+13.00	+13.06	+13.11	+13.17	+13.22	+13.28
54	12.22	12.28	12.33	12.39	12.44	12.50	12.56	12.61	12.67	12.72
53	11.67	11.72	11.78	11.83	11.89	11.94	12.00	12.06	12.11	12.17
52	11.11	11.17	11.22	11.28	11.33	11.39	11.44	11.50	11.56	11.61
51	10.56	10.61	10.67	10.72	10.78	10.83	10.89	10.94	11.00	11.06
+50	+10.00	+10.06	+10.11	+10.17	+10.22	+10.28	+10.33	+10.39	+10.44	+10.50
49	9.44	9.50	9.56	9.61	9.67	9.72	9.78	9.83	9.89	9.94
48	8.89	8.94	9.00	9.06	9.11	9.17	9.22	9.28	9.33	9.39
47	8.33	8.39	8.44	8.50	8.56	8.61	8.67	8.72	8.78	8.83
46	7.78	7.83	7.89	7.94	8.00	8.06	8.11	8.17	8.22	8.28
+45	+ 7.22	+ 7.28	+ 7.33	+ 7.39	+ 7.44	+ 7.50	+ 7.56	+ 7.61	+ 7.67	+ 7.72
44	6.67	6.72	6.78	6.83	6.89	6.94	7.00	7.06	7.11	7.17
43	6.11	6.17	6.22	6.28	6.33	6.39	6.44	6.50	6.56	6.61
42	5.56	5.61	5.67	5.72	5.78	5.83	5.89	5.94	6.00	6.06
41	5.00	5.06	5.11	5.17	5.22	5.28	5.33	5.39	5.44	5.50
+40	+ 4.44	+ 4.50	+ 4.56	+ 4.61	+ 4.67	+ 4.72	+ 4.78	+ 4.83	+ 4.89	+ 4.94
39	3.89	3.94	4.00	4.06	4.11	4.17	4.22	4.28	4.33	4.39
38	3.33	3.39	3.44	3.50	3.56	3.61	3.67	3.72	3.78	3.83
37	2.78	2.83	2.89	2.94	3.00	3.06	3.11	3.17	3.22	3.28
36	2.22	2.28	2.33	2.39	2.44	2.50	2.56	2.61	2.67	2.72
+35	+ 1.67	+ 1.72	+ 1.78	+ 1.83	+ 1.89	+ 1.94	+ 2.00	+ 2.06	+ 2.11	+ 2.17
34	+ 1.11	+ 1.17	+ 1.22	+ 1.28	+ 1.33	+ 1.39	+ 1.44	+ 1.50	+ 1.56	+ 1.61
33	+ 0.56	+ 0.61	+ 0.67	+ 0.72	+ 0.78	+ 0.83	+ 0.89	+ 0.94	+ 1.00	+ 1.06
32	0.00	+ 0.06	+ 0.11	+ 0.17	+ 0.22	+ 0.28	+ 0.33	+ 0.39	+ 0.44	+ 0.50
31	− 0.56	− 0.50	− 0.44	− 0.39	− 0.33	− 0.28	− 0.22	− 0.17	− 0.11	− 0.06
+30	− 1.11	− 1.06	− 1.00	− 0.94	− 0.89	− 0.83	− 0.78	− 0.72	− 0.67	− 0.61
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9

FAHRENHEIT SCALE TO CENTIGRADE.

Fahrenheit.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	C.	C.	C.	C.	C.	C.	C.	C.	C.	C.
+30°	− 1°.11	− 1°.06	− 1°.00	− 0°.94	− 0°.89	− 0°.83	− 0°.78	− 0°.72	− 0°.67	− 0°.61
29	1.67	1.61	1.56	1.50	1.44	1.39	1.33	1.28	1.22	1.17
28	2.22	2.17	2.11	2.06	2.00	1.94	1.89	1.83	1.78	1.72
27	2.78	2.72	2.67	2.61	2.56	2.50	2.44	2.39	2.33	2.28
26	3.33	3.28	3.22	3.17	3.11	3.06	3.00	2.94	2.89	2.83
+25	− 3.89	− 3.83	− 3.78	− 3.72	− 3.67	− 3.61	− 3.56	− 3.50	− 3.44	− 3.39
24	4.44	4.39	4.33	4.28	4.22	4.17	4.11	4.06	4.00	3.94
23	5.00	4.94	4.89	4.83	4.78	4.72	4.67	4.61	4.56	4.50
22	5.56	5.50	5.44	5.39	5.33	5.28	5.22	5.17	5.11	5.06
21	6.11	6.06	6.00	5.94	5.89	5.83	5.78	5.72	5.67	5.61
+20	− 6.67	− 6.61	− 6.56	− 6.50	− 6.44	− 6.39	− 6.33	− 6.28	− 6.22	− 6.17
19	7.22	7.17	7.11	7.06	7.00	6.94	6.89	6.83	6.78	6.72
18	7.78	7.72	7.67	7.61	7.56	7.50	7.44	7.39	7.33	7.28
17	8.33	8.28	8.22	8.17	8.11	8.06	8.00	7.94	7.89	7.83
16	8.89	8.83	8.78	8.72	8.67	8.61	8.56	8.50	8.44	8.39
+15	− 9.44	− 9.39	− 9.33	− 9.28	− 9.22	− 9.17	− 9.11	− 9.06	− 9.00	− 8.94
14	10.00	9.94	9.89	9.83	9.78	9.72	9.67	9.61	9.56	9.50
13	10.56	10.50	10.44	10.39	10.33	10.28	10.22	10.17	10.11	10.06
12	11.11	11.06	11.00	10.94	10.89	10.83	10.78	10.72	10.67	10.61
11	11.67	11.61	11.56	11.50	11.44	11.39	11.33	11.28	11.22	11.17
+10	−12.22	−12.17	−12.11	−12.06	−12.00	−11.94	−11.89	−11.83	−11.78	−11.72
9	12.78	12.72	12.67	12.61	12.56	12.50	12.44	12.39	12.33	12.28
8	13.33	13.28	13.22	13.17	13.11	13.06	13.00	12.94	12.89	12.83
7	13.89	13.83	13.78	13.72	13.67	13.61	13.56	13.50	13.44	13.39
6	14.44	14.39	14.33	14.28	14.22	14.17	14.11	14.06	14.00	13.94
+ 5	−15.00	−14.94	−14.89	−14.83	−14.78	−14.72	−14.67	−14.61	−14.56	−14.50
4	15.56	15.50	15.44	15.39	15.33	15.28	15.22	15.17	15.11	15.06
3	16.11	16.06	16.00	15.94	15.89	15.83	15.78	15.72	15.67	15.61
2	16.67	16.61	16.56	16.50	16.44	16.39	16.33	16.28	16.22	16.17
1	17.22	17.17	17.11	17.06	17.00	16.94	16.89	16.83	16.78	16.72
+ 0	17.78	17.72	17.67	17.61	17.56	17.50	17.44	17.39	17.33	17.28
− 0	−17.78	−17.83	−17.89	−17.94	−18.00	−18.06	−18.11	−18.17	−18.22	−18.28
1	18.33	18.39	18.44	18.50	18.56	18.61	18.67	18.72	18.78	18.83
2	18.89	18.94	19.00	19.06	19.11	19.17	19.22	19.28	19.33	19.39
3	19.44	19.50	19.56	19.61	19.67	19.72	19.78	19.83	19.89	19.94
4	20.00	20.06	20.11	20.17	20.22	20.28	20.33	20.39	20.44	20.50
− 5	−20.56	−20.61	−20.67	−20.72	−20.78	−20.83	−20.89	−20.94	−21.00	−21.06
6	21.11	21.17	21.22	21.28	21.33	21.39	21.44	21.50	21.56	21.61
7	21.67	21.72	21.78	21.83	21.89	21.94	22.00	22.06	22.11	22.17
8	22.22	22.28	22.33	22.39	22.44	22.50	22.56	22.61	22.67	22.72
9	22.78	22.83	22.89	22.94	23.00	23.06	23.11	23.17	23.22	23.28
−10	−23.33	−23.39	−23.44	−23.50	−23.56	−23.61	−23.67	−23.72	−23.78	−23.83
11	23.89	23.94	24.00	24.06	24.11	24.17	24.22	24.28	24.33	24.39
12	24.44	24.50	24.56	24.61	24.67	24.72	24.78	24.83	24.89	24.94
13	25.00	25.06	25.11	25.17	25.22	25.28	25.33	25.39	25.44	25.50
14	25.56	25.61	25.67	25.72	25.78	25.83	25.89	25.94	26.00	26.06
−15	−26.11	−26.17	−26.22	−26.28	−26.33	−26.39	−26.44	−26.50	−26.56	−26.61
16	26.67	26.72	26.78	26.83	26.89	26.94	27.00	27.06	27.11	27.17
17	27.22	27.28	27.33	27.39	27.44	27.50	27.56	27.61	27.67	27.72
18	27.78	27.83	27.89	27.94	28.00	28.06	28.11	28.17	28.22	28.28
19	28.33	28.39	28.44	28.50	28.56	28.61	28.67	28.72	28.78	28.83
−20	−28.89	−28.94	−29.00	−29.06	−29.11	−29.17	−29.22	−29.28	−29.33	−29.39
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9

Table 2.

FAHRENHEIT SCALE TO CENTIGRADE.

Fahrenheit.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	C.	C.	C.	C.	C.	C.	C.	C.	C.	C.
−20°	−28°.89	−28°.94	−29°.00	29°.06	−29°.11	−29°.17	−29°.22	−29°.28	−29°.33	−29°.39
21	29.44	29.50	29.56	29.61	29.67	29.72	29.78	29.83	29.89	29.94
22	30.00	30.06	30.11	30.17	30.22	30.28	30.33	30.39	30.44	30.50
23	30.56	30.61	30.67	30.72	30.78	30.83	30.89	30.94	31.00	31.06
24	31.11	31.17	31.22	31.28	31.33	31.39	31.44	31.50	31.56	31.61
−25	−31.67	−31.72	−31.78	−31.83	31.89	−31.94	−32.00	−32.06	−32.11	−32.17
26	32.22	32.28	32.33	32.39	32.44	32.50	32.56	32.61	32.67	32.72
27	32.78	32.83	32.89	32.94	33.00	33.06	33.11	33.17	33.22	33.28
28	33.33	33.39	33.44	33.50	33.56	33.61	33.67	33.72	33.78	33.83
29	33.89	33.94	34.00	34.06	34.11	34.17	34.22	34.28	34.33	34.39
−30	−34.44	−34.50	−34.56	−34.61	−34.67	−34.72	−34.78	−34.83	−34.89	−34.94
31	35.00	35.06	35.11	35.17	35.22	35.28	35.33	35.39	35.44	35.50
32	35.56	35.61	35.67	35.72	35.78	35.83	35.89	35.94	36.00	36.06
33	36.11	36.17	36.22	36.28	36.33	36.39	36.44	36.50	36.56	36.61
34	36.67	36.72	36.78	36.83	36.89	36.94	37.00	37.06	37.11	37.17
−35	−37.22	−37.28	−37.33	−37.39	−37.44	−37.50	−37.56	−37.61	−37.67	−37.72
36	37.78	37.83	37.89	37.94	38.00	38.06	38.11	38.17	38.22	38.28
37	38.33	38.39	38.44	38.50	38.56	38.61	38.67	38.72	38.78	38.83
38	38.89	38.94	39.00	39.06	39.11	39.17	39.22	39.28	39.33	39.39
39	39.44	39.50	39.56	39.61	39.67	39.72	39.78	39.83	39.89	39.94
−40	−40.00	−40.06	−40.11	−40.17	−40.22	−40.28	−40.33	−40.39	−40.44	−40.50
41	40.56	40.61	40.67	40.72	40.78	40.83	40.89	40.94	41.00	41.06
42	41.11	41.17	41.22	41.28	41.33	41.39	41.44	41.50	41.56	41.61
43	41.67	41.72	41.78	41.83	41.89	41.94	42.00	42.06	42.11	42.17
44	42.22	42.28	42.33	42.39	42.44	42.50	42.56	42.61	42.67	42.72
−45	−42.78	−42.83	−42.89	−42.94	−43.00	−43.06	−43.11	−43.17	−43.22	−43.28
46	43.33	43.39	43.44	43.50	43.56	43.61	43.67	43.72	43.78	43.83
47	43.89	43.94	44.00	44.06	44.11	44.17	44.22	44.28	44.33	44.39
48	44.44	44.50	44.56	44.61	44.67	44.72	44.78	44.83	44.89	44.94
49	45.00	45.06	45.11	45.17	45.22	45.28	45.33	45.39	45.44	45.50
−50	−45.56	−45.61	−45.67	−45.72	−45.78	−45.83	−45.89	−45.94	−46.00	−46.06
51	46.11	46.17	46.22	46.28	46.33	46.39	46.44	46.50	46.56	46.61
52	46.67	46.72	46.78	46.83	46.89	46.94	47.00	47.06	47.11	47.17
53	47.22	47.28	47.33	47.39	47.44	47.50	47.56	47.61	47.67	47.72
54	47.78	47.83	47.89	47.94	48.00	48.06	48.11	48.17	48.22	48.28
−55	−48.33	−48.39	−48.44	−48.50	−48.56	−48.61	−48.67	−48.72	−48.78	−48.83
56	48.89	48.94	49.00	49.06	49.11	49.17	49.22	49.28	49.33	49.39
57	49.44	49.50	49.56	49.61	49.67	49.72	49.78	49.83	49.89	49.94
58	50.00	50.06	50.11	50.17	50.22	50.28	50.33	50.39	50.44	50.50
59	50.56	50.61	50.67	50.72	50.78	50.83	50.89	50.94	51.00	51.06
−60	−51.11	−51.17	−51.22	−51.28	−51.33	−51.39	−51.44	−51.50	−51.56	−51.61
61	51.67	51.72	51.78	51.83	51.89	51.94	52.00	52.06	52.11	52.17
62	52.22	52.28	52.33	52.39	52.44	52.50	52.56	52.61	52.67	52.72
63	52.78	52.83	52.89	52.94	53.00	53.06	53.11	53.17	53.22	53.28
64	53.33	53.39	53.44	53.50	53.56	53.61	53.67	53.72	53.78	53.83
−65	−53.89	−53.94	−54.00	−54.06	−54.11	−54.17	−54.22	−54.28	−54.33	−54.39
66	54.44	54.50	54.56	54.61	54.67	54.72	54.78	54.83	54.89	54.94
67	55.00	55.06	55.11	55.17	55.22	55.28	55.33	55.39	55.44	55.50
68	55.56	55.61	55.67	55.72	55.78	55.83	55.89	55.94	56.00	56.06
69	56.11	56.17	56.22	56.28	56.33	56.39	56.44	56.50	56.56	56.61
−70	−56.67	−56.72	−56.78	−56.83	−56.89	−56.94	−57.00	−57.06	−57.11	−57.17
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9

FAHRENHEIT SCALE TO CENTIGRADE.

Fahrenheit.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	C.	C.	C.	C.	C.	C.	C.	C.	C.	C.
−70°	−56°.67	−56°.72	−56°.78	−56°.83	−56°.89	−56°.94	−57°.00	−57°.06	−57°.11	−57°.17
71	57.22	57.28	57.33	57.39	57.44	57.50	57.56	57.61	57.67	57.72
72	57.78	57.83	57.89	57.94	58.00	58.06	58.11	58.17	58.22	58.28
73	58.33	58.39	58.44	58.50	58.56	58.61	58.67	58.72	58.78	58.83
74	58.89	58.94	59.00	59.06	59.11	59.17	59.22	59.28	59.33	59.39
−75	−59.44	−59.50	−59.56	−59.61	−59.67	−59.72	−59.78	−59.83	−59.89	−59.94
76	60.00	60.06	60.11	60.17	60.22	60.28	60.33	60.39	60.44	60.50
77	60.56	60.61	60.67	60.72	60.78	60.83	60.89	60.94	61.00	61.06
78	61.11	61.17	61.22	61.28	61.33	61.39	61.44	61.50	61.56	61.61
79	61.67	61.72	61.78	61.83	61.89	61.94	62.00	62.06	62.11	62.17
−80	−62.22	−62.28	−62.33	−62.39	−62.44	−62.50	−62.56	−62.61	−62.67	−62.72
81	62.78	62.83	62.89	62.94	63.00	63.06	63.11	63.17	63.22	63.28
82	63.33	63.39	63.44	63.50	63.56	63.61	63.67	63.72	63.78	63.83
83	63.89	63.94	64.00	64.06	64.11	64.17	64.22	64.28	64.33	64.39
84	64.44	64.50	64.56	64.61	64.67	64.72	64.78	64.83	64.89	64.94
−85	−65.00	−65.06	−65.11	−65.17	−65.22	−65.28	−65.33	−65.39	−65.44	−65.50
86	65.56	65.61	65.67	65.72	65.78	65.83	65.89	65.94	66.00	66.06
87	66.11	66.17	66.22	66.28	66.33	66.39	66.44	66.50	66.56	66.61
88	66.67	66.72	66.78	66.83	66.89	66.94	67.00	67.06	67.11	67.17
89	67.22	67.28	67.33	67.39	67.44	67.50	67.56	67.61	67.67	67.72
−90	−67.78	−67.83	−67.89	−67.94	−68.00	−68.06	−68.11	−68.17	−68.22	−68.28
91	68.33	68.39	68.44	68.50	68.56	68.61	68.67	68.72	68.78	68.83
92	68.89	68.94	69.00	69.06	69.11	69.17	69.22	69.28	69.33	69.39
93	69.44	69.50	69.56	69.61	69.67	69.72	69.78	69.83	69.89	69.94
94	70.00	70.06	70.11	70.17	70.22	70.28	70.33	70.39	70.44	70.50
−95	−70.56	−70.61	−70.67	−70.72	−70.78	−70.83	−70.89	−70.94	−71.00	−71.06
96	71.11	71.17	71.22	71.28	71.33	71.39	71.44	71.50	71.56	71.61
97	71.67	71.72	71.78	71.83	71.89	71.94	72.00	72.06	72.11	72.17
98	72.22	72.28	72.33	72.39	72.44	72.50	72.56	72.61	72.67	72.72
99	72.78	72.83	72.89	72.94	73.00	73.06	73.11	73.17	73.22	73.28
−100	−73.33	−73.39	−73.44	−73.50	−73.56	−73.61	−73.67	−73.72	−73.78	−73.83
101	73.89	73.94	74.00	74.06	74.11	74.17	74.22	74.28	74.33	74.39
102	74.44	74.50	74.56	74.61	74.67	74.72	74.78	74.83	74.89	74.94
103	75.00	75.06	75.11	75.17	75.22	75.28	75.33	75.39	75.44	75.50
104	75.56	75.61	75.67	75.72	75.78	75.83	75.89	75.94	76.00	76.06
−105	−76.11	−76.17	−76.22	−76.28	−76.33	−76.39	−76.44	−76.50	−76.56	−76.61
106	76.67	76.72	76.78	76.83	76.89	76.94	77.00	77.06	77.11	77.17
107	77.22	77.28	77.33	77.39	77.44	77.50	77.56	77.61	77.67	77.72
108	77.78	77.83	77.89	77.94	78.00	78.06	78.11	78.17	78.22	78.28
109	78.33	78.39	78.44	78.50	78.56	78.61	78.67	78.72	78.78	78.83
−110	−78.89	−78.94	−79.00	−79.06	−79.11	−79.17	−79.22	−79.28	−79.33	−79.39
111	79.44	79.50	79.56	79.61	79.67	79.72	79.78	79.83	79.89	79.94
112	80.00	80.06	80.11	80.17	80.22	80.28	80.33	80.39	80.44	80.50
113	80.56	80.61	80.67	80.72	80.78	80.83	80.89	80.94	81.00	81.06
114	81.11	81.17	81.22	81.28	81.33	81.39	81.44	81.50	81.56	81.61
−115	−81.67	−81.72	−81.78	−81.83	−81.89	−81.94	−82.00	−82.06	−82.11	−82.17
116	82.22	82.28	82.33	82.39	82.44	82.50	82.56	82.61	82.67	82.72
117	82.78	82.83	82.89	82.94	83.00	83.06	83.11	83.17	83.22	83.28
118	83.33	83.39	83.44	83.50	83.56	83.61	83.67	83.72	83.78	83.83
119	83.89	83.94	84.00	84.06	84.11	84.17	84.22	84.28	84.33	84.39
−120	−84.44	−84.50	−84.56	−84.61	−84.67	−84.72	−84.78	−84.83	−84.89	−84.94
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9

TABLE 3.

CENTIGRADE SCALE TO FAHRENHEIT.

Centigrade.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.
+60°	+140°.00	+140°.18	+140°.36	+140°.54	+140°.72	+140°.90	+141°.08	+141°.26	+141°.44	+141°.62
59	138.20	138.38	138.56	138.74	138.92	139.10	139.28	139.46	139.64	139.82
58	136.40	136.58	136.76	136.94	137.12	137.30	137.48	137.66	137.84	138.02
57	134.60	134.78	134.96	135.14	135.32	135.50	135.68	135.86	136.04	136.22
56	132.80	132.98	133.16	133.34	133.52	133.70	133.88	134.06	134.24	134.42
+55	+131.00	+131.18	+131.36	+131.54	+131.72	+131.90	+132.08	+132.26	+132.44	+132.62
54	129.20	129.38	129.56	129.74	129.92	130.10	130.28	130.46	130.64	130.82
53	127.40	127.58	127.76	127.94	128.12	128.30	128.48	128.66	128.84	129.02
52	125.60	125.78	125.96	126.14	126.32	126.50	126.68	126.86	127.04	127.22
51	123.80	123.98	124.16	124.34	124.52	124.70	124.88	125.06	125.24	125.42
+50	+122.00	+122.18	+122.36	+122.54	+122.72	+122.90	+123.08	+123.26	+123.44	+123.62
49	120.20	120.38	120.56	120.74	120.92	121.10	121.28	121.46	121.64	121.82
48	118.40	118.58	118.76	118.94	119.12	119.30	119.48	119.66	119.84	120.02
47	116.60	116.78	116.96	117.14	117.32	117.50	117.68	117.86	118.04	118.22
46	114.80	114.98	115.16	115.34	115.52	115.70	115.88	116.06	116.24	116.42
+45	+113.00	+113.18	+113.36	+113.54	+113.72	+113.90	+114.08	+114.26	+114.44	+114.62
44	111.20	111.38	111.56	111.74	111.92	112.10	112.28	112.46	112.64	112.82
43	109.40	109.58	109.76	109.94	110.12	110.30	110.48	110.66	110.84	111.02
42	107.60	107.78	107.96	108.14	108.32	108.50	108.68	108.86	109.04	109.22
41	105.80	105.98	106.16	106.34	106.52	106.70	106.88	107.06	107.24	107.42
+40	+104.00	+104.18	+104.36	+104.54	+104.72	+104.90	+105.08	+105.26	+105.44	+105.62
39	102.20	102.38	102.56	102.74	102.92	103.10	103.28	103.46	103.64	103.82
38	100.40	100.58	100.76	100.94	101.12	101.30	101.48	101.66	101.84	102.02
37	98.60	98.78	98.96	99.14	99.32	99.50	99.68	99.86	100.04	100.22
36	96.80	96.98	97.16	97.34	97.52	97.70	97.88	98.06	98.24	98.42
+35	+ 95.00	+ 95.18	+ 95.36	+ 95.54	+ 95.72	+ 95.90	+ 96.08	+ 96.26	+ 96.44	+ 96.62
34	93.20	93.38	93.56	93.74	93.92	94.10	94.28	94.46	94.64	94.82
33	91.40	91.58	91.76	91.94	92.12	92.30	92.48	92.66	92.84	93.02
32	89.60	89.78	89.96	90.14	90.32	90.50	90.68	90.86	91.04	91.22
31	87.80	87.98	88.16	88.34	88.52	88.70	88.88	89.06	89.24	89.42
+30	+ 86.00	+ 86.18	+ 86.36	+ 86.54	+ 86.72	+ 86.90	+ 87.08	+ 87.26	+ 87.44	+ 87.62
29	84.20	84.38	84.56	84.74	84.92	85.10	85.28	85.46	85.64	85.82
28	82.40	82.58	82.76	82.94	83.12	83.30	83.48	83.66	83.84	84.02
27	80.60	80.78	80.96	81.14	81.32	81.50	81.68	81.86	82.04	82.22
26	78.80	78.98	79.16	79.34	79.52	79.70	79.88	80.06	80.24	80.42
+25	+ 77.00	+ 77.18	+ 77.36	+ 77.54	+ 77.72	+ 77.90	+ 78.08	+ 78.26	+ 78.44	+ 78.62
24	75.20	75.38	75.56	75.74	75.92	76.10	76.28	76.46	76.64	76.82
23	73.40	73.58	73.76	73.94	74.12	74.30	74.48	74.66	74.84	75.02
22	71.60	71.78	71.96	72.14	72.32	72.50	72.68	72.86	73.04	73.22
21	69.80	69.98	70.16	70.34	70.52	70.70	70.88	71.06	71.24	71.42
+20	+ 68.00	+ 68.18	+ 68.36	+ 68.54	+ 68.72	+ 68.90	+ 69.08	+ 69.26	+ 69.44	+ 69.62
19	66.20	66.38	66.56	66.74	66.92	67.10	67.28	67.46	67.64	67.82
18	64.40	64.58	64.76	64.94	65.12	65.30	65.48	65.66	65.84	66.02
17	62.60	62.78	62.96	63.14	63.32	63.50	63.68	63.86	64.04	64.22
16	60.80	60.98	61.16	61.34	61.52	61.70	61.88	62.06	62.24	62.42
+15	+ 59.00	+ 59.18	+ 59.36	+ 59.54	+ 59.72	+ 59.90	+ 60.08	+ 60.26	+ 60.44	+ 60.62
14	57.20	57.38	57.56	57.74	57.92	58.10	58.28	58.46	58.64	58.82
13	55.40	55.58	55.76	55.94	56.12	56.30	56.48	56.66	56.84	57.02
12	53.60	53.78	53.96	54.14	54.32	54.50	54.68	54.86	55.04	55.22
11	51.80	51.98	52.16	52.34	52.52	52.70	52.88	53.06	53.24	53.42
+10	+ 50.00	+ 50.18	+ 50.36	+ 50.54	+ 50.72	+ 50.90	+ 51.08	+ 51.26	+ 51.44	+ 51.62
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9

CENTIGRADE SCALE TO FAHRENHEIT.

Centi-grade.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.
+10°	+50°.00	+50°.18	+50°.36	+50°.54	+50°.72	+50°.90	+51°.08	+51°.26	+51°.44	+51°.62
+ 9	+48.20	+48.38	+48.56	+48.74	+48.92	+49.10	+49.28	+49.46	+49.64	+49.82
8	46.40	46.58	46.76	46.94	47.12	47.30	47.48	47.66	47.84	48.02
7	44.60	44.78	44.96	45.14	45.32	45.50	45.68	45.86	46.04	46.22
6	42.80	42.98	43.16	43.34	43.52	43.70	43.88	44.06	44.24	44.42
5	41.00	41.18	41.36	41.54	41.72	41.90	42.08	42.26	42.44	42.62
+ 4	+39.20	+39.38	+39.56	+39.74	+39.92	+40.10	+40.28	+40.46	+40.64	+40.82
3	37.40	37.58	37.76	37.94	38.12	38.30	38.48	38.66	38.84	39.02
2	35.60	35.78	35.96	36.14	36.32	36.50	36.68	36.86	37.04	37.22
1	33.80	33.98	34.16	34.34	34.52	34.70	34.88	35.06	35.24	35.42
+ 0	32.00	32.18	32.36	32.54	32.72	32.90	33.08	33.26	33.44	33.62
− 0	+32.00	+31.82	+31.64	+31.46	+31.28	+31.10	+30.92	+30.74	+30.56	+30.38
1	30.20	30.02	29.84	29.66	29.48	29.30	29.12	28.94	28.76	28.58
2	28.40	28.22	28.04	27.86	27.68	27.50	27.32	27.14	26.96	26.78
3	26.60	26.42	26.24	26.06	25.88	25.70	25.52	25.34	25.16	24.98
4	24.80	24.62	24.44	24.26	24.08	23.90	23.72	23.54	23.36	23.18
− 5	+23.00	+22.82	+22.64	+22.46	+22.28	+22.10	+21.92	+21.74	+21.56	+21.38
6	21.20	21.02	20.84	20.66	20.48	20.30	20.12	19.94	19.76	19.58
7	19.40	19.22	19.04	18.86	18.68	18.50	18.32	18.14	17.96	17.78
8	17.60	17.42	17.24	17.06	16.88	16.70	16.52	16.34	16.16	15.98
9	15.80	15.62	15.44	15.26	15.08	14.90	14.72	14.54	14.36	14.18
−10	+14.00	+13.82	+13.64	+13.46	+13.28	+13.10	+12.92	+12.74	+12.56	+12.38
11	12.20	12.02	11.84	11.66	11.48	11.30	11.12	10.94	10.76	10.58
12	10.40	10.22	10.04	9.86	9.68	9.50	9.32	9.14	8.96	8.78
13	8.60	8.42	8.24	8.06	7.88	7.70	7.52	7.34	7.16	6.98
14	6.80	6.62	6.44	6.26	6.08	5.90	5.72	5.54	5.36	5.18
−15	+ 5.00	+ 4.82	+ 4.64	+ 4.46	+ 4.28	+ 4.10	+ 3.92	+ 3.74	+ 3.56	+ 3.38
16	+ 3.20	+ 3.02	+ 2.84	+ 2.66	+ 2.48	+ 2.30	+ 2.12	+ 1.94	+ 1.76	+ 1.58
17	+ 1.40	+ 1.22	+ 1.04	+ 0.86	+ 0.68	+ 0.50	+ 0.32	+ 0.14	− 0.04	− 0.22
18	− 0.40	− 0.58	− 0.76	− 0.94	− 1.12	− 1.30	− 1.48	− 1.66	− 1.84	− 2.02
19	− 2.20	− 2.38	− 2.56	− 2.74	− 2.92	− 3.10	− 3.28	− 3.46	− 3.64	− 3.82
−20	− 4.00	− 4.18	− 4.36	− 4.54	− 4.72	− 4.90	− 5.08	− 5.26	− 5.44	− 5.62
21	5.80	5.98	6.16	6.34	6.52	6.70	6.88	7.06	7.24	7.42
22	7.60	7.78	7.96	8.14	8.32	8.50	8.68	8.86	9.04	9.22
23	9.40	9.58	9.76	9.94	10.12	10.30	10.48	10.66	10.84	11.02
24	11.20	11.38	11.56	11.74	11.92	12.10	12.28	12.46	12.64	12.82
−25	−13.00	−13.18	−13.36	−13.54	−13.72	−13.90	−14.08	−14.26	−14.44	−14.62
26	14.80	14.98	15.16	15.34	15.52	15.70	15.88	16.06	16.24	16.42
27	16.60	16.78	16.96	17.14	17.32	17.50	17.68	17.86	18.04	18.22
28	18.40	18.58	18.76	18.94	19.12	19.30	19.48	19.66	19.84	20.02
29	20.20	20.38	20.56	20.74	20.92	21.10	21.28	21.46	21.64	21.82
−30	−22.00	−22.18	−22.36	−22.54	−22.72	−22.90	−23.08	−23.26	−23.44	−23.62
31	23.80	23.98	24.16	24.34	24.52	24.70	24.88	25.06	25.24	25.42
32	25.60	25.78	25.96	26.14	26.32	26.50	26.68	26.86	27.04	27.22
33	27.40	27.58	27.76	27.94	28.12	28.30	28.48	28.66	28.84	29.02
34	29.20	29.38	29.56	29.74	29.92	30.10	30.28	30.46	30.64	30.82
−35	−31.00	−31.18	−31.36	−31.54	−31.72	−31.90	−32.08	−32.26	−32.44	−32.62
36	32.80	32.98	33.16	33.34	33.52	33.70	33.88	34.06	34.24	34.42
37	34.60	34.78	34.96	35.14	35.32	35.50	35.68	35.86	36.04	36.22
38	36.40	36.58	36.76	36.94	37.12	37.30	37.48	37.66	37.84	38.02
39	38.20	38.38	38.56	38.74	38.92	39.10	39.28	39.46	39.64	39.82
−40	−40.00	−40.18	−40.36	−40.54	−40.72	−40.90	−41.08	−41.26	−41.44	−41.62
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9

TABLE 3.

CENTIGRADE SCALE TO FAHRENHEIT.

Centigrade.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.
−40°	−40°.00	−40°.18	−40°.36	−40°.54	−40°.72	−40°.90	−41°.08	−41°.26	−41°.44	−41°.62
41	41.80	41.98	42.16	42.34	42.52	42.70	42.88	43.06	43.24	43.42
42	43.60	43.78	43.96	44.14	44.32	44.50	44.68	44.86	45.04	45.22
43	45.40	45.58	45.76	45.94	46.12	46.30	46.48	46.66	46.84	47.02
44	47.20	47.38	47.56	47.74	47.92	48.10	48.28	48.46	48.64	48.82
−45	−49.00	−49.18	−49.36	−49.54	−49.72	−49.90	−50.08	−50.26	−50.44	−50.62
46	50.80	50.98	51.16	51.34	51.52	51.70	51.88	52.06	52.24	52.42
47	52.60	52.78	52.96	53.14	53.32	53.50	53.68	53.86	54.04	54.22
48	54.40	54.58	54.76	54.94	55.12	55.30	55.48	55.66	55.84	56.02
49	56.20	56.38	56.56	56.74	56.92	57.10	57.28	57.46	57.64	57.82
−50	−58.00	−58.18	−58.36	−58.54	−58.72	−58.90	−59.08	−59.26	−59.44	−59.62
51	59.80	59.98	60.16	60.34	60.52	60.70	60.88	61.06	61.24	61.42
52	61.60	61.78	61.96	62.14	62.32	62.50	62.68	62.86	63.04	63.22
53	63.40	63.58	63.76	63.94	64.12	64.30	64.48	64.66	64.84	65.02
54	65.20	65.38	65.56	65.74	65.92	66.10	66.28	66.46	66.64	66.82
−55	−67.00	−67.18	−67.36	−67.54	−67.72	−67.90	−68.08	−68.26	−68.44	−68.62
56	68.80	68.98	69.16	69.34	69.52	69.70	69.88	70.06	70.24	70.42
57	70.60	70.78	70.96	71.14	71.32	71.50	71.68	71.86	72.04	72.22
58	72.40	72.58	72.76	72.94	73.12	73.30	73.48	73.66	73.84	74.02
59	74.20	74.38	74.56	74.74	74.92	75.10	75.28	75.46	75.64	75.82
−60	−76.00	−76.18	−76.36	−76.54	−76.72	−76.90	−77.08	−77.26	−77.44	−77.62
61	77.80	77.98	78.16	78.34	78.52	78.70	78.88	79.06	79.24	79.42
62	79.60	79.78	79.96	80.14	80.32	80.50	80.68	80.86	81.04	81.22
63	81.40	81.58	81.76	81.94	82.12	82.30	82.48	82.66	82.84	83.02
64	83.20	83.38	83.56	83.74	83.92	84.10	84.28	84.46	84.64	84.82
−65	−85.00	−85.18	−85.36	−85.54	−85.72	−85.90	−86.08	−86.26	−86.44	−86.62
66	86.80	86.98	87.16	87.34	87.52	87.70	87.88	88.06	88.24	88.42
67	88.60	88.78	88.96	89.14	89.32	89.50	89.68	89.86	90.04	90.22
68	90.40	90.58	90.76	90.94	91.12	91.30	91.48	91.66	91.84	92.02
69	92.20	92.38	92.56	92.74	92.92	93.10	93.28	93.46	93.64	93.82
−70	−94.00	−94.18	−94.36	−94.54	−94.72	−94.90	−95.08	−95.26	−95.44	−95.62
71	95.80	95.98	96.16	96.34	96.52	96.70	96.88	97.06	97.24	97.42
72	97.60	97.78	97.96	98.14	98.32	98.50	98.68	98.86	99.04	99.22
73	99.40	99.58	99.76	99.94	100.12	100.30	100.48	100.66	100.84	101.02
74	101.20	101.38	101.56	101.74	101.92	102.10	102.28	102.46	102.64	102.82
−75	−103.00	−103.18	−103.36	−103.54	−103.72	−103.90	−104.08	−104.26	−104.44	−104.62
76	104.80	104.98	105.16	105.34	105.52	105.70	105.88	106.06	106.24	106.42
77	106.60	106.78	106.96	107.14	107.32	107.50	107.68	107.86	108.04	108.22
78	108.40	108.58	108.76	108.94	109.12	109.30	109.48	109.66	109.84	110.02
79	110.20	110.38	110.56	110.74	110.92	111.10	111.28	111.46	111.64	111.82
−80	−112.00	−112.18	−112.36	−112.54	−112.72	−112.90	−113.08	−113.26	−113.44	−113.62
81	113.80	113.98	114.16	114.34	114.52	114.70	114.88	115.06	115.24	115.42
82	115.60	115.78	115.96	116.14	116.32	116.50	116.68	116.86	117.04	117.22
83	117.40	117.58	117.76	117.94	118.12	118.30	118.48	118.66	118.84	119.02
84	119.20	119.38	119.56	119.74	119.92	120.10	120.28	120.46	120.64	120.82
−85	−121.00	−121.18	−121.36	−121.54	−121.72	−121.90	−122.08	−122.26	−132.44	−122.62
86	122.80	122.98	123.16	123.34	123.52	123.70	123.88	124.06	124.24	124.42
87	124.60	124.78	124.96	125.14	125.32	125.50	125.68	125.86	126.04	126.22
88	126.40	126.58	126.76	126.94	127.12	127.30	127.48	127.66	127.84	128.02
89	128.20	128.38	128.56	128.74	128.92	129.10	129.28	129.46	129.64	129.82
−90	−130.00	−130.18	−130.36	−130.54	−130.72	−130.90	−131.08	−131.26	−131.44	−131.62
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9

CENTIGRADE SCALE TO FAHRENHEIT—Near the Boiling Point.

Centigrade.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.
100°	212°.00	212°.18	212°.36	212°.54	212°.72	212°.90	213°.08	213°.26	213°.44	213°.62
99	210.20	210.38	210.56	210.74	210.92	211.10	211.28	211.46	211.64	211.82
98	208.40	208.58	208.76	208.94	209.12	209.30	209.48	209.66	209.84	210.02
97	206.60	206.78	206.96	207.14	207.32	207.50	207.68	207.86	208.04	208.22
96	204.80	204.98	205.16	205.34	205.52	205.70	205.88	206.06	206.24	206.42
95	203.00	203.18	203.36	203.54	203.72	203.90	204.08	204.26	204.44	204.62
94	201.20	201.38	201.56	201.74	201.92	202.10	202.28	202.46	202.64	202.82
93	199.40	199.58	199.76	199.94	200.12	200.30	200.48	200.66	200.84	201.02
92	197.60	197.78	197.96	198.14	198.32	198.50	198.68	198.86	199.04	199.22
91	195.80	195.98	196.16	196.34	196.52	196.70	196.88	197.06	197.24	197.42
90	194.00	194.18	194.36	194.54	194.72	194.90	195.08	195.26	195.44	195.62

Table 5.

DIFFERENCES FAHRENHEIT TO DIFFERENCES CENTIGRADE.

Fahrenheit.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	C.	C.	C.	C.	C.	C.	C.	C.	C.	C.
0°	0°.00	0°.06	0°.11	0°.17	0°.22	0°.28	0°.33	0°.39	0°.44	0°.50
1	0.56	0.61	0.67	0.72	0.78	0.83	0.89	0.94	1.00	1.06
2	1.11	1.17	1.22	1.28	1.33	1.39	1.44	1.50	1.56	1.61
3	1.67	1.72	1.78	1.83	1.89	1.94	2.00	2.06	2.11	2.17
4	2.22	2.28	2.33	2.39	2.44	2.50	2.56	2.61	2.67	2.72
5	2.78	2.83	2.89	2.94	3.00	3.06	3.11	3.17	3.22	3.28
6	3.33	3.39	3.44	3.50	3.56	3.61	3.67	3.72	3.78	3.83
7	3.89	3.94	4.00	4.06	4.11	4.17	4.22	4.28	4.33	4.39
8	4.44	4.50	4.56	4.61	4.67	4.72	4.78	4.83	4.89	4.94
9	5.00	5.06	5.11	5.17	5.22	5.28	5.33	5.39	5.44	5.50
10	5.56	5.61	5.67	5.72	5.78	5.83	5.89	5.94	6.00	6.06
11	6.11	6.17	6.22	6.28	6.33	6.39	6.44	6.50	6.56	6.61
12	6.67	6.72	6.78	6.83	6.89	6.94	7.00	7.06	7.11	7.17
13	7.22	7.28	7.33	7.39	7.44	7.50	7.56	7.61	7.67	7.72
14	7.78	7.83	7.89	7.94	8.00	8.06	8.11	8.17	8.22	8.28
15	8.33	8.39	8.44	8.50	8.56	8.61	8.67	8.72	8.78	8.83
16	8.89	8.94	9.00	9.06	9.11	9.17	9.22	9.28	9.33	9.39
17	9.44	9.50	9.56	9.61	9.67	9.72	9.78	9.83	9.89	9.94
18	10.00	10.06	10.11	10.17	10.22	10.28	10.33	10.39	10.44	10.50
19	10.56	10.61	10.67	10.72	10.78	10.83	10.89	10.94	11.00	11.06
20	11.11	11.17	11.22	11.28	11.33	11.39	11.44	11.50	11.56	11.61

Table 6.

DIFFERENCES CENTIGRADE TO DIFFERENCES FAHRENHEIT.

Centigrade.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.
0°	0°.00	0°.18	0°.36	0°.54	0°.72	0°.90	1°.08	1°.26	1°.44	1°.62
1	1.80	1.98	2.16	2.34	2.52	2.70	2.88	3.06	3.24	3.42
2	3.60	3.78	3.96	4.14	4.32	4.50	4.68	4.86	5.04	5.22
3	5.40	5.58	5.76	5.94	6.12	6.30	6.48	6.66	6.84	7.02
4	7.20	7.38	7.56	7.74	7.92	8.10	8.28	8.46	8.64	8.82
5	9.00	9.18	9.36	9.54	9.72	9.90	10.08	10.26	10.44	10.62
6	10.80	10.98	11.16	11.34	11.52	11.70	11.88	12.06	12.24	12.42
7	12.60	12.78	12.96	13.14	13.32	13.50	13.68	13.86	14.04	14.22
8	14.40	14.58	14.76	14.94	15.12	15.30	15.48	15.66	15.84	16.02
9	16.20	16.38	16.56	16.74	16.92	17.10	17.28	17.46	17.64	17.82

CORRECTION FOR THE TEMPERATURE OF THE EMERGENT MERCURIAL COLUMN OF THERMOMETERS.

$T = t - 0.000086\, n(t' - t)$ — Fahrenheit temperatures.
$T = t - 0.000155\, n(t' - t)$ — Centigrade temperatures.
T = Corrected temperature.
t = Observed temperature.
t' = Mean temperature of the glass stem and emergent mercury column.
n = Length of mercury in the emergent stem in scale degrees.

When t' is $\left\{\frac{\text{higher}}{\textit{lower}}\right\}$ than t the numerical correction is to be $\left\{\frac{\text{subtracted.}}{\textit{added.}}\right\}$

TABLE 7.

CORRECTION FOR FAHRENHEIT THERMOMETERS.

Values of $0.000086\, n(t' - t)$

n	$t' - t$									
	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.
10°	0°.01	0°.02	0°.03	0°.03	0°.04	0°.05	0°.06	0°.07	0°.08	0°.09
20	0.02	0.03	0.05	0.07	0.09	0.10	0.12	0.14	0.15	0.17
30	0.03	0.05	0.08	0.10	0.13	0.15	0.18	0.21	0.23	0.26
40	0.03	0.07	0.10	0.14	0.17	0.21	0.24	0.28	0.31	0.34
50	0.04	0.09	0.13	0.17	0.22	0.26	0.30	0.34	0.39	0.43
60	0.05	0.10	0.15	0.21	0.26	0.31	0.36	0.41	0.46	0.52
70	0.06	0.12	0.18	0.24	0.30	0.36	0.42	0.48	0.54	0.60
80	0.07	0.14	0.21	0.28	0.34	0.41	0.48	0.55	0.62	0.69
90	0.08	0.15	0.23	0.31	0.39	0.46	0.54	0.62	0.70	0.77
100	0.09	0.17	0.26	0.34	0.43	0.52	0.60	0.69	0.77	0.86
110	0.09	0.19	0.28	0.38	0.47	0.57	0.66	0.76	0.85	0.95
120	0.10	0.21	0.31	0.41	0.52	0.62	0.72	0.83	0.93	1.03
130	0.11	0.22	0.34	0.45	0.56	0.67	0.78	0.90	1.01	1.12

TABLE 8.

CORRECTION FOR CENTIGRADE THERMOMETERS.

Values of $0.000155\, n(t' - t)$

n	$t' - t$							
	10°	20°	30°	40°	50°	60°	70°	80°
C.	C.	C.	C.	C.	C.	C.	C.	C.
10°	0°.02	0°.03	0°.05	0°.06	0°.08	0°.09	0°.11	0°.12
20	0.03	0.06	0.09	0.12	0.16	0.19	0.22	0.25
30	0.05	0.09	0.14	0.19	0.23	0.28	0.33	0.37
40	0.06	0.12	0.19	0.25	0.31	0.37	0.43	0.50
50	0.08	0.16	0.23	0.31	0.39	0.46	0.54	0.62
60	0.09	0.19	0.28	0.37	0.46	0.56	0.65	0.74
70	0.11	0.22	0.33	0.43	0.54	0.65	0.76	0.87
80	0.12	0.25	0.37	0.50	0.62	0.74	0.87	0.99
90	0.14	0.28	0.42	0.56	0.70	0.84	0.98	1.12
100	0.16	0.31	0.46	0.62	0.78	0.93	1.08	1.24

CONVERSIONS INVOLVING LINEAR MEASURES.

Table 9.

INCHES INTO MILLIMETERS.

1 inch = 25.40005 mm.

Inches.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0.00	0.00	0.25	0.51	0.76	1.02	1.27	1.52	1.78	2.03	2.29
0.10	2.54	2.79	3.05	3.30	3.56	3.81	4.06	4.32	4.57	4.83
0.20	5.08	5.33	5.59	5.84	6.10	6.35	6.60	6.86	7.11	7.37
0.30	7.62	7.87	8.13	8.38	8.64	8.89	9.14	9.40	9.65	9.91
0.40	10.16	10.41	10.67	10.92	11.18	11.43	11.68	11.94	12.19	12.45
0.50	12.70	12.95	13.21	13.46	13.72	13.97	14.22	14.48	14.73	14.99
0.60	15.24	15.49	15.75	16.00	16.26	16.51	16.76	17.02	17.27	17.53
0.70	17.78	18.03	18.29	18.54	18.80	19.05	19.30	19.56	19.81	20.07
0.80	20.32	20.57	20.83	21.08	21.34	21.59	21.84	22.10	22.35	22.61
0.90	22.86	23.11	23.37	23.62	23.88	24.13	24.38	24.64	24.89	25.15
1.00	25.40	25.65	25.91	26.16	26.42	26.67	26.92	27.18	27.43	27.69
1.10	27.94	28.19	28.45	28.70	28.96	29.21	29.46	29.72	29.97	30.23
1.20	30.48	30.73	30.99	31.24	31.50	31.75	32.00	32.26	32.51	32.77
1.30	33.02	33.27	33.53	33.78	34.04	34.29	34.54	34.80	35.05	35.31
1.40	35.56	35.81	36.07	36.32	36.58	36.83	37.08	37.34	37.59	37.85
1.50	38.10	38.35	38.61	38.86	39.12	39.37	39.62	39.88	40.13	40.39
1.60	40.64	40.89	41.15	41.40	41.66	41.91	42.16	42.42	42.67	42.93
1.70	43.18	43.43	43.69	43.94	44.20	44.45	44.70	44.96	45.21	45.47
1.80	45.72	45.97	46.23	46.48	46.74	46.99	47.24	47.50	47.75	48.01
1.90	48.26	48.51	48.77	49.02	49.28	49.53	49.78	50.04	50.29	50.55
2.00	50.80	51.05	51.31	51.56	51.82	52.07	52.32	52.58	52.83	53.09
2.10	53.34	53.59	53.85	54.10	54.36	54.61	54.86	55.12	55.37	55.63
2.20	55.88	56.13	56.39	56.64	56.90	57.15	57.40	57.66	57.91	58.17
2.30	58.42	58.67	58.93	59.18	59.44	59.69	59.94	60.20	60.45	60.71
2.40	60.96	61.21	61.47	61.72	61.98	62.23	62.48	62.74	62.99	63.25
2.50	63.50	63.75	64.01	64.26	64.52	64.77	65.02	65.28	65.53	65.79
2.60	66.04	66.29	66.55	66.80	67.06	67.31	67.56	67.82	68.07	68.33
2.70	68.58	68.83	69.09	69.34	69.60	69.85	70.10	70.36	70.61	70.87
2.80	71.12	71.37	71.63	71.88	72.14	72.39	72.64	72.90	73.15	73.41
2.90	73.66	73.91	74.17	74.42	74.68	74.93	75.18	75.44	75.69	75.95
3.00	76.20	76.45	76.71	76.96	77.22	77.47	77.72	77.98	78.23	78.49
3.10	78.74	78.99	79.25	79.50	79.76	80.01	80.26	80.52	80.77	81.03
3.20	81.28	81.53	81.79	82.04	82.30	82.55	82.80	83.06	83.31	83.57
3.30	83.82	84.07	84.33	84.59	84.84	85.09	85.34	85.60	85.85	86.11
3.40	86.36	86.61	86.87	87.12	87.38	87.63	87.88	88.14	88.39	88.65
3.50	88.90	89.15	89.41	89.66	89.92	90.17	90.42	90.68	90.93	91.19
3.60	91.44	91.69	91.95	92.20	92.46	92.71	92.96	93.22	93.47	93.73
3.70	93.98	94.23	94.49	94.74	95.00	95.25	95.50	95.76	96.01	96.27
3.80	96.52	96.77	97.03	97.28	97.54	97.79	98.04	98.30	98.55	98.81
3.90	99.06	99.31	99.57	99.82	100.08	100.33	100.58	100.84	101.09	101.35
4.00	101.60	101.85	102.11	102.36	102.62	102.87	103.12	103.38	103.63	103.89
4.10	104.14	104.39	104.65	104.90	105.16	105.41	105.66	105.92	106.17	106.43
4.20	106.68	106.93	107.19	107.44	107.70	107.95	108.20	108.46	108.71	108.97
4.30	109.22	109.47	109.73	109.98	110.24	110.49	110.74	111.00	111.25	111.51
4.40	111.76	112.01	112.27	112.52	112.78	113.03	113.28	113.54	113.79	114.05
4.50	114.30	114.55	114.81	115.06	115.32	115.57	115.82	116.08	116.33	116.59
4.60	116.84	117.09	117.35	117.60	117.86	118.11	118.36	118.62	118.87	119.13
4.70	119.38	119.63	119.89	120.14	120.40	120.65	120.90	121.16	121.41	121.67
4.80	121.92	122.17	122.43	122.68	122.94	123.19	123.44	123.70	123.95	124.21
4.90	124.46	124.71	124.97	125.22	125.48	125.73	125.98	126.24	126.49	126.75
5.00	127.00	127.25	127.51	127.76	128.02	128.27	128.52	128.78	129.03	129.29

Proportional Parts.										
	Inch.	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
	mm.	0.025	0.051	0.076	0.102	0.127	0.152	0.178	0.203	0.229

INCHES INTO MILLIMETERS.

1 inch = 25.40005 mm.

Inches.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
5.00	127.00	127.25	127.51	127.76	128.02	128.27	128.52	128.78	129.03	129.29
5.10	129.54	129.79	130.05	130.30	130.56	130.81	131.06	131.32	131.57	131.83
5.20	132.08	132.33	132.59	132.84	133.10	133.35	133.60	133.86	134.11	134.37
5.30	134.62	134.87	135.13	135.38	135.64	135.89	136.14	136.40	136.65	136.91
5.40	137.16	137.41	137.67	137.92	138.18	138.43	138.68	138.94	139.19	139.45
5.50	139.70	139.95	140.21	140.46	140.72	140.97	141.22	141.48	141.73	141.99
5.60	142.24	142.49	142.75	143.00	143.26	143.51	143.76	144.02	144.27	144.53
5.70	144.78	145.03	145.29	145.54	145.80	146.05	146.30	146.56	146.81	147.07
5.80	147.32	147.57	147.83	148.08	148.34	148.59	148.84	149.10	149.35	149.61
5.90	149.86	150.11	150.37	150.62	150.88	151.13	151.38	151.64	151.89	152.15
6.00	152.40	152.66	152.91	153.16	153.42	153.67	153.92	154.18	154.43	154.69
6.10	154.94	155.19	155.45	155.70	155.96	156.21	156.46	156.72	156.97	157.23
6.20	157.48	157.73	157.99	158.24	158.50	158.75	159.00	159.26	159.51	159.77
6.30	160.02	160.27	160.53	160.78	161.04	161.29	161.54	161.80	162.05	162.31
6.40	162.56	162.81	163.07	163.32	163.58	163.83	164.08	164.34	164.59	164.85
6.50	165.10	165.35	165.61	165.86	166.12	166.37	166.62	166.88	167.13	167.39
6.60	167.64	167.89	168.15	168.40	168.66	168.91	169.16	169.42	169.67	169.93
6.70	170.18	170.43	170.69	170.94	171.20	171.45	171.70	171.96	172.21	172.47
6.80	172.72	172.97	173.23	173.48	173.74	173.99	174.24	174.50	174.75	175.01
6.90	175.26	175.51	175.77	176.02	176.28	176.53	176.78	177.04	177.29	177.55
7.00	177.80	178.05	178.31	178.56	178.82	179.07	179.32	179.58	179.83	180.09
7.10	180.34	180.59	180.85	181.10	181.36	181.61	181.86	182.12	182.37	182.63
7.20	182.88	183.13	183.39	183.64	183.90	184.15	184.40	184.66	184.91	185.17
7.30	185.42	185.67	185.93	186.18	186.44	186.69	186.94	187.20	187.45	187.71
7.40	187.96	188.21	188.47	188.72	188.98	189.23	189.48	189.74	189.99	190.25
7.50	190.50	190.75	191.01	191.26	191.52	191.77	192.02	192.28	192.53	192.79
7.60	193.04	193.29	193.55	193.80	194.06	194.31	194.56	194.82	195.07	195.33
7.70	195.58	195.83	196.09	196.34	196.60	196.85	197.10	197.36	197.61	197.87
7.80	198.12	198.37	198.63	198.88	199.14	199.39	199.64	199.90	200.15	200.41
7.90	200.66	200.91	201.17	201.42	201.68	201.93	202.18	202.44	202.69	202.95
8.00	203.20	203.45	203.71	203.96	204.22	204.47	204.72	204.98	205.23	205.49
8.10	205.74	205.99	206.25	206.50	206.76	207.01	207.26	207.52	207.77	208.03
8.20	208.28	208.53	208.79	209.04	209.30	209.55	209.80	210.06	210.31	210.57
8.30	210.82	211.07	211.33	211.58	211.84	212.09	212.34	212.60	212.85	213.11
8.40	213.36	213.61	213.87	214.12	214.38	214.63	214.88	215.14	215.39	215.65
8.50	215.90	216.15	216.41	216.66	216.92	217.17	217.42	217.68	217.93	218.19
8.60	218.44	218.69	218.95	219.20	219.46	219.71	219.96	220.22	220.47	220.73
8.70	220.98	221.23	221.49	221.74	222.00	222.25	222.50	222.76	223.01	223.27
8.80	223.52	223.77	224.03	224.28	224.54	224.79	225.04	225.30	225.55	225.81
8.90	226.06	226.31	226.57	226.82	227.08	227.33	227.58	227.84	228.09	228.35
9.00	228.60	228.85	229.11	229.36	229.62	229.87	230.12	230.38	230.63	230.89
9.10	231.14	231.39	231.65	231.90	232.16	232.41	232.66	232.92	233.17	233.43
9.20	233.68	233.93	234.19	234.44	234.70	234.95	235.20	235.46	235.71	235.97
9.30	236.22	236.47	236.73	236.98	237.24	237.49	237.74	238.00	238.25	238.51
9.40	238.76	239.01	239.27	239.52	239.78	240.03	240.28	240.54	240.79	241.05
9.50	241.30	241.55	241.81	242.06	242.32	242.57	242.82	243.08	243.33	243.59
9.60	243.84	244.09	244.35	244.60	244.86	245.11	245.36	245.62	245.87	246.13
9.70	246.38	246.63	246.89	247.14	247.40	247.65	247.90	248.16	248.41	248.67
9.80	248.92	249.17	249.43	249.68	249.94	250.19	250.44	250.70	250.95	251.21
9.90	251.46	251.71	251.97	252.22	252.48	252.73	252.98	253.24	253.49	253.75
10.00	254.00	254.25	254.51	254.76	255.02	255.27	255.52	255.78	256.03	256.29

Proportional Parts.										
	Inch.	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
	mm.	0.025	0.051	0.076	0.102	0.127	0.152	0.178	0.203	0.229

Table 9.

INCHES INTO MILLIMETERS.

1 inch = 25.40005 mm.

Inches.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
10.00	254.00	254.25	254.51	254.76	255.02	255.27	255.52	255.78	256.03	256.29
10.10	256.54	256.79	257.05	257.30	257.56	257.81	258.06	258.32	258.57	258.83
10.20	259.08	259.33	259.59	259.84	260.10	260.35	260.60	260.86	261.11	261.37
10.30	261.62	261.87	262.13	262.38	262.64	262.89	263.14	263.40	263.65	263.91
10.40	264.16	264.41	264.67	264.92	265.18	265.43	265.68	265.94	266.19	266.45
10.50	266.70	266.95	267.21	267.46	267.72	267.97	268.22	268.48	268.73	268.99
10.60	269.24	269.49	269.75	270.00	270.26	270.51	270.76	271.02	271.27	271.53
10.70	271.78	272.03	272.29	272.54	272.80	273.05	273.30	273.56	273.81	274.07
10.80	274.32	274.57	274.93	275.08	275.34	275.59	275.84	276.10	276.35	276.61
10.90	276.86	277.11	277.37	277.62	277.88	278.13	278.38	278.64	278.89	279.15
11.00	279.40	279.65	279.91	280.16	280.42	280.67	280.92	281.18	281.43	281.69
11.10	281.94	282.19	282.45	282.70	282.96	283.21	283.46	283.72	283.97	284.23
11.20	284.48	284.73	284.99	285.24	285.50	285.75	286.00	286.26	286.51	286.77
11.30	287.02	287.27	287.53	287.78	288.04	288.29	288.54	288.80	289.05	289.31
11.40	289.56	289.81	290.07	290.32	290.58	290.83	291.08	291.34	291.59	291.85
11.50	292.10	292.35	292.61	292.86	293.12	293.37	293.62	293.88	294.13	294.39
11.60	294.64	294.89	295.15	295.40	295.66	295.91	296.16	296.42	296.67	296.93
11.70	297.18	297.43	297.69	297.94	298.20	298.45	298.70	298.96	299.21	299.47
11.80	299.72	299.97	300.23	300.48	300.74	300.99	301.24	301.50	301.75	302.01
11.90	302.26	302.51	302.77	303.02	303.28	303.53	303.78	304.04	304.29	304.55
12.00	304.80	305.05	305.31	305.56	305.82	306.07	306.32	306.58	306.83	307.09
12.10	307.34	307.59	307.85	308.10	308.36	308.61	308.86	309.12	309.37	309.63
12.20	309.88	310.13	310.39	310.64	310.90	311.15	311.40	311.66	311.91	312.17
12.30	312.42	312.67	312.93	313.18	313.44	313.69	313.94	314.20	314.45	314.71
12.40	314.96	315.21	315.47	315.72	315.98	316.23	316.48	316.74	316.99	317.25
12.50	317.50	317.75	318.01	318.26	318.52	318.77	319.02	319.28	319.53	319.79
12.60	320.04	320.29	320.55	320.80	321.06	321.31	321.56	321.82	322.07	322.33
12.70	322.58	322.83	323.09	323.34	323.60	323.85	324.10	324.36	324.61	324.87
12.80	325.12	325.37	325.63	325.88	326.14	326.39	326.64	326.90	327.15	327.41
12.90	327.66	327.91	328.17	328.42	328.68	328.93	329.18	329.44	329.69	329.95
13.00	330.20	330.45	330.71	330.96	331.22	331.47	331.72	331.98	332.23	332.49
13.10	332.74	332.99	333.25	333.50	333.76	334.01	334.26	334.52	334.77	335.03
13.20	335.28	335.53	335.79	336.04	336.30	336.55	336.80	337.06	337.31	337.57
13.30	337.82	338.07	338.33	338.58	338.84	339.09	339.34	339.60	339.85	340.11
13.40	340.36	340.61	340.87	341.12	341.38	341.63	341.88	342.14	342.39	342.65
13.50	342.90	343.15	343.41	343.66	343.92	344.17	344.42	344.68	344.93	345.19
13.60	345.44	345.69	345.95	346.20	346.46	346.71	346.96	347.22	347.47	347.73
13.70	347.98	348.23	348.49	348.74	349.00	349.25	349.50	349.76	350.01	350.27
13.80	350.52	350.77	351.03	351.28	351.54	351.79	352.04	352.30	352.55	352.81
13.90	353.06	353.31	353.57	353.82	354.08	354.33	354.58	354.84	355.09	355.35
14.00	355.60	355.85	356.11	356.36	356.62	356.87	357.12	357.38	357.63	357.89
14.10	358.14	358.39	358.65	358.90	359.16	359.41	359.66	359.92	360.17	360.43
14.20	360.68	360.93	361.19	361.44	361.70	361.95	362.20	362.46	362.71	362.97
14.30	363.22	363.47	363.73	363.98	364.24	364.49	364.74	365.00	365.25	365.51
14.40	365.76	366.01	366.27	366.52	366.78	367.03	367.28	367.54	367.79	368.05
14.50	368.30	368.55	368.81	369.06	369.32	369.57	369.82	370.08	370.33	370.59
14.60	370.84	371.09	371.35	371.60	371.86	372.11	372.36	372.62	372.87	373.13
14.70	373.38	373.63	373.89	374.14	374.40	374.65	374.90	375.16	375.41	375.67
14.80	375.92	376.17	376.43	376.68	376.94	377.19	377.44	377.70	377.95	378.21
14.90	378.46	378.71	378.97	379.22	379.48	379.73	379.98	380.24	380.49	380.75
15.00	381.00	381.25	381.51	381.76	382.02	382.27	382.52	382.78	383.03	383.29

Proportional Parts.										
	Inch.	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
	mm.	0.025	0.051	0.076	0.102	0.127	0.152	0.178	0.203	0.229

INCHES INTO MILLIMETERS.

1 inch = 25.40005 mm.

Inches.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
15.00	381.00	381.25	381.51	381.76	382.02	382.27	382.52	382.78	383.03	383.29
15.10	383.54	383.79	384.05	384.30	384.56	384.81	385.06	385.32	385.57	385.83
15.20	386.08	386.33	386.59	386.84	387.10	387.35	387.60	387.86	388.11	388.37
15.30	388.62	388.87	389.13	389.38	389.64	389.89	390.14	390.40	390.65	390.91
15.40	391.16	391.41	391.67	391.92	392.18	392.43	392.68	392.94	393.19	393.45
15.50	393.70	393.95	394.21	394.46	394.72	394.97	395.22	395.48	395.73	395.99
15.60	396.24	39.649	396.75	397.00	397.26	397.51	397.76	398.02	398.27	398.53
15.70	398.78	399.03	399.29	399.54	399.80	400.05	400.30	400.56	400.81	401.07
15.80	401.32	401.57	401.83	402.08	402.34	402.59	402.84	403.10	403.35	403.61
15.90	403.86	404.11	404.37	404.62	404.88	405.13	405.38	405.64	405.89	406.15
16.00	406.40	406.65	406.91	407.16	407.52	407.67	407.92	408.18	408.43	408.69
16.10	408.94	409.19	409.45	409.70	409.96	410.21	410.46	410.72	410.97	411.23
16.20	411.48	411.73	411.99	412.24	412.50	412.75	413.00	413.26	413.51	413.77
16.30	414.02	414.27	414.53	414.78	415.04	415.29	415.54	415.80	416.05	416.31
16.40	416.56	416.81	417.07	417.32	417.58	417.83	418.08	418.34	418.59	418.85
16.50	419.10	419.35	419.61	419.86	420.12	420.37	420.62	420.88	421.13	421.39
16.60	421.64	421.89	422.15	422.40	422.66	422.91	423.16	423.42	423.67	423.93
16.70	424.18	424.43	424.69	424.94	425.20	425.45	425.70	425.96	426.21	426.47
16.80	426.72	426.97	427.23	427.48	427.74	427.99	428.24	428.50	428.75	429.01
16.90	429.26	429.51	429.77	430.02	430.28	430.53	430.78	431.04	431.29	431.55
17.00	431.80	432.05	432.31	432.56	432.82	433.07	433.32	433.58	433.83	434.09
17.10	434.34	434.59	434.85	435.10	435.36	435.61	435.86	436.12	436.37	436.63
17.20	436.88	437.13	437.39	437.64	437.90	438.15	438.40	438.66	438.91	439.17
17.30	439.42	439.67	439.93	440.18	440.44	440.69	440.94	441.20	441.45	441.71
17.40	441.96	442.21	442.47	442.72	442.98	443.23	443.48	443.74	443.99	444.25
17.50	444.50	444.75	445.01	445.26	445.52	445.77	446.02	446.28	446.53	446.79
17.60	447.04	447.29	447.55	447.80	448.06	448.31	448.56	448.82	449.07	449.33
17.70	449.58	449.83	450.09	450.34	450.60	450.85	451.10	451.36	451.61	451.87
17.80	452.12	452.37	452.63	452.88	453.14	453.39	453.64	453.90	454.15	454.41
17.90	454.66	454.91	455.17	455.42	455.68	455.93	456.18	456.44	456.69	456.95
18.00	457.20	457.45	457.71	457.96	458.22	458.47	458.72	458.98	459.23	459.49
18.10	459.74	459.99	460.25	460.50	460.76	461.01	461.26	461.52	461.77	462.03
18.20	462.28	462.53	462.79	463.04	463.30	463.55	463.80	464.06	464.31	464.57
18.30	464.82	465.07	465.33	465.58	465.84	466.09	466.34	466.60	466.85	467.11
18.40	467.36	467.61	467.87	468.12	468.38	468.63	468.88	469.14	469.39	469.35
18.50	469.90	470.15	470.41	470.66	470.92	471.17	471.42	471.68	471.93	472.19
18.60	472.44	472.69	472.95	473.20	473.46	473.71	473.96	474.22	474.47	474.73
18.70	474.98	475.23	475.49	475.74	476.00	476.25	476.50	476.76	477.01	477.27
18.80	477.52	477.77	478.03	478.28	478.54	478.79	479.04	479.30	479.55	479.81
18.90	480.06	480.31	480.57	480.82	481.08	481.33	481.58	481.84	482.09	482.35
19.00	482.60	482.85	483.11	483.36	483.62	483.87	484.12	484.38	484.63	484.89
19.10	485.14	485.39	485.65	485.90	486.16	486.41	486.66	486.92	487.17	487.43
19.20	487.68	487.93	488.19	488.44	488.70	488.95	489.20	489.46	489.71	489.97
19.30	490.22	490.47	490.73	490.98	491.24	491.49	491.74	492.00	492.25	492.51
19.40	492.76	493.01	493.27	493.52	493.78	494.03	494.28	494.54	494.79	495.05
19.50	495.30	495.55	495.81	496.06	496.32	496.57	496.82	497.08	497.33	497.59
19.60	497.84	498.09	498.35	498.60	498.86	499.11	499.36	499.62	499.87	500.13
19.70	500.38	500.34	500.89	501.14	501.40	501.65	501.91	502.16	502.41	502.67
19.80	502.92	503.18	503.43	503.68	503.94	504.19	504.45	504.70	504.95	505.21
19.90	505.46	505.72	505.97	506.22	506.48	506.73	506.99	507.24	507.49	507.75
20.00	508.00	508.26	508.51	508.76	509.02	509.27	509.53	509.78	510.03	510.29

Proportional Parts.										
Inch.	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
mm.	0.025	0.051	0.076	0.102	0.127	0.152	0.178	0.203	0.229

INCHES INTO MILLIMETERS.

1 inch = 25.40005 mm.

Inches.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
20.00	508.00	508.26	508.51	508.76	509.02	509.27	509.53	509.78	510.03	510.29
20.10	510.54	510.80	511.05	511.30	511.56	511.81	512.07	512.32	512.57	512.83
20.20	513.08	513.34	513.59	513.84	514.10	514.35	514.61	514.86	515.11	515.37
20.30	515.62	515.88	516.13	516.38	516.64	516.89	517.15	517.40	517.65	517.91
20.40	518.16	518.42	518.67	518.92	519.18	519.43	519.69	519.94	520.19	520.45
20.50	520.70	520.96	521.21	521.46	521.72	521.97	522.23	522.48	522.73	522.99
20.60	523.24	523.50	523.75	524.00	524.26	524.51	524.77	525.02	525.27	525.53
20.70	525.78	526.04	526.29	526.54	526.80	526.95	527.31	527.56	527.81	528.07
20.80	528.32	528.58	528.83	529.08	529.34	529.59	529.85	530.10	530.35	530.61
20.90	530.86	531.12	531.37	531.62	531.88	532.13	532.39	532.64	532.89	533.15
21.00	533.40	533.66	533.91	534.16	534.42	534.67	534.93	535.18	535.43	535.69
21.10	535.94	536.20	536.45	536.70	536.96	537.21	537.47	537.72	537.98	538.23
21.20	538.48	538.74	538.99	539.24	539.50	539.75	540.01	540.26	540.51	540.77
21.30	541.02	541.28	541.53	541.78	542.04	542.29	542.55	542.80	543.05	543.31
21.40	543.56	543.82	544.07	544.32	544.58	544.83	545.09	545.34	545.59	545.85
21.50	546.10	546.36	546.61	546.86	547.12	547.37	547.63	547.88	548.13	548.39
21.60	548.64	548.90	549.15	549.40	549.66	549.91	550.17	550.42	550.67	550.93
21.70	551.18	551.44	551.69	551.94	552.20	552.45	552.71	552.96	553.21	553.47
21.80	553.72	553.98	554.23	554.48	554.74	554.99	555.25	555.50	555.75	556.01
21.90	556.26	556.52	556.77	557.02	557.28	557.53	557.79	558.04	558.29	558.55
22.00	558.80	559.06	559.31	559.56	559.82	560.07	560.03	560.58	560.83	561.09
22.10	561.34	561.60	561.85	562.10	562.36	562.61	562.87	563.12	563.37	563.63
22.20	563.88	564.14	564.39	564.64	564.90	565.15	565.41	565.66	565.91	566.17
22.30	566.42	566.68	566.93	567.18	567.44	567.69	567.95	568.20	568.45	568.71
22.40	568.96	569.22	569.47	569.72	569.98	570.23	570.49	570.74	570.99	571.25
22.50	571.50	571.76	572.01	572.26	572.52	572.77	573.03	573.28	573.53	573.79
22.60	574.04	574.30	574.55	574.80	575.06	575.31	575.57	575.82	576.07	576.33
22.70	576.58	576.84	577.09	577.34	577.60	577.95	578.11	578.36	578.61	578.87
22.80	579.12	579.38	579.63	579.88	580.14	580.39	580.65	580.90	581.15	581.41
22.90	581.66	581.92	582.17	582.42	582.68	582.93	583.19	583.44	583.69	583.95
23.00	584.20	584.46	584.71	584.96	585.22	585.47	585.73	585.98	586.23	586.49
23.10	586.74	587.00	587.25	587.50	587.76	588.01	588.27	588.52	588.77	589.03
23.20	589.28	589.54	589.79	590.04	590.30	590.55	590.81	591.06	591.31	591.57
23.30	591.82	592.08	592.33	592.58	592.84	593.09	593.35	593.60	593.85	594.11
23.40	594.36	594.62	594.87	595.12	595.38	595.63	595.89	596.14	596.39	596.65
23.50	596.90	597.16	597.41	597.66	597.92	598.17	598.43	598.68	598.93	599.19
23.60	599.44	599.70	599.95	600.20	600.46	600.71	600.97	601.22	601.47	601.73
23.70	601.98	602.24	602.49	602.74	603.00	603.25	603.51	603.76	604.01	604.27
23.80	604.52	604.78	605.03	605.28	605.54	605.79	606.05	606.30	606.55	606.81
23.90	607.06	607.32	607.57	607.82	608.08	608.33	608.59	608.84	609.09	609.35
24.00	609.60	609.86	610.11	610.36	610.62	610.87	611.13	611.38	611.63	611.89
24.10	612.14	612.40	612.65	612.90	613.16	613.41	613.67	613.92	614.17	614.43
24.20	614.68	614.94	615.19	615.44	615.70	615.95	616.21	616.46	616.71	616.97
24.30	617.22	617.48	617.73	617.98	618.24	618.49	618.75	619.00	619.25	619.51
24.40	619.76	620.02	620.27	620.52	620.78	621.03	621.29	621.54	621.79	622.05
24.50	622.30	622.56	622.81	623.06	623.32	623.57	623.83	624.08	624.33	624.59
24.60	624.84	625 10	625.35	625.60	625.86	626.11	626.37	626.62	626.87	627.13
24.70	627.38	627.64	627.89	628.14	628.40	628.65	628.91	629.16	629.41	629.67
24.80	629.92	630.18	630.43	630.68	630.94	631.19	631.45	631.70	631.95	632.21
24.90	632.46	632.72	632.97	633.22	633.48	633.73	633.99	634.24	634.49	634.75
25.00	635.00	635.26	635.51	635.76	636.02	636.27	636.53	636.78	637.03	637.29

Proportional Parts.										
	Inch.	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
	mm.	0.025	0.051	0.076	0.102	0.127	0.152	0.178	0.203	0.229

INCHES INTO MILLIMETERS.

1 inch = 25.40005 mm.

Inches.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
25.00	635.00	635.26	635.51	635.76	636.02	636.27	636.53	636.78	637.03	637.29
25.10	637.54	637.80	638.05	638.30	638.56	638.81	639.07	639.32	639.57	639.83
25.20	640.08	640.34	640.59	640.84	641.10	641.35	641.61	641.86	642.11	642.37
25.30	642.62	642.88	643.13	643.38	643.64	643.89	644.15	644.40	644.65	644.91
25.40	645.16	645.42	645.67	645.92	646.18	646.43	646.69	646.94	647.19	647.45
25.50	647.70	647.96	648.21	648.46	648.72	648.97	649.23	649.48	649.73	649.99
25.60	650.24	650.50	650.75	651.00	651.26	651.51	651.77	652.02	654.27	652.53
25.70	652.78	653.04	653.29	653.54	653.80	654.05	654.31	654.56	654.81	655.07
25.80	655.32	655.58	655.83	656.08	656.34	656.59	656.85	657.10	657.35	657.61
25.90	657.86	658.12	658.37	658.62	658.88	659.13	659.39	659.64	659.89	660.15
26.00	660.40	660.66	660.91	661.16	661.42	661.67	661.93	662.18	662.43	662.69
26.10	662.94	663.20	663.45	663.70	663.96	664.21	664.47	664.72	664.97	665.23
26.20	665.48	665.74	665.99	666.24	666.50	666.75	667.01	667.26	667.51	667.77
26.30	668.02	668.28	668.53	668.78	669.04	669.29	669.55	669.80	670.05	670.31
26.40	670.56	670.82	671.07	671.32	671.58	671.83	672.09	672.34	672.59	672.85
26.50	673.10	673.36	673.61	673.86	674.12	674.37	674.63	674.88	675.13	675.39
26.60	675.64	675.90	676.15	676.40	676.66	676.91	677.17	677.42	677.67	677.93
26.70	678.18	678.44	678.69	678.94	679.20	679.45	679.71	679.96	680.21	680.47
26.80	680.72	680.98	681.23	681.48	681.74	681.99	682.25	682.50	682.75	683.01
26.90	683.26	683.52	683.77	684.02	684.28	684.53	684.79	685.04	685.29	685.55
27.00	685.80	686.06	686.31	686.56	686.82	687.07	687.33	687.58	687.83	688.09
27.10	688.34	688.60	688.85	689.10	689.36	689.61	689.87	690.12	690.37	690.63
27.20	690.88	691.14	691.39	691.64	691.90	692.15	692.41	692.66	692.91	693.17
27.30	693.42	693.68	693.93	694.18	694.44	694.69	694.95	695.20	695.45	695.71
27.40	695.96	696.22	696.47	696.72	696.98	697.23	697.49	697.74	697.99	698.25
27.50	698.50	698.76	699.01	699.26	699.52	699.77	700.03	700.28	700.53	700.79
27.60	701.04	701.30	701.55	701.80	702.06	702.31	702.57	702.82	703.07	703.33
27.70	703.58	703.84	704.09	704.34	704.60	704.85	705.11	705.36	705.61	705.87
27.80	706.12	706.38	706.63	706.88	707.14	707.39	707.65	707.90	708.15	708.41
27.90	708.66	708.92	709.17	709.42	709.68	709.93	710.19	710.44	710.69	710.95
28.00	711.20	711.46	711.71	711.96	712.22	712.47	712.73	712.98	713.23	713.49
28.10	713.74	714.00	714.25	714.50	714.76	715.01	715.27	715.52	715.77	716.03
28.20	716.28	716.54	716.79	717.04	717.30	717.55	717.81	718.06	718.31	718.57
28.30	718.82	719.08	719.33	719.58	719.84	720.09	720.35	720.60	720.85	721.11
28.40	721.36	721.62	721.87	722.12	722.39	722.63	722.89	723.14	723.39	723.65
28.50	723.90	724.16	724.41	724.66	724.92	725.17	725.43	725.68	725.93	726.19
28.60	726.44	726.70	726.95	727.20	727.46	727.71	727.97	728.22	728.47	728.73
28.70	728.98	729.24	729.49	729.74	730.00	730.25	730.51	730.76	731.01	731.27
28.80	731.52	731.78	732.03	732.28	732.54	732.79	733.05	733.30	733.55	733.81
28.90	734.06	734.32	734.57	734.82	735.08	735.33	735.59	735.84	736.09	736.35
29.00	736.60	736.86	737.11	737.36	737.62	737.87	738.13	738.38	738.63	738.89
29.10	739.14	739.40	739.65	739.90	740.16	740.41	740.67	740.92	741.17	741.43
29.20	741.68	741.94	742.19	742.44	742.70	742.95	743.21	743.46	743.71	743.97
29.30	744.22	744.48	744.73	744.98	745.24	745.49	745.75	746.00	746.25	746.51
29.40	746.76	747.02	747.27	747.52	747.78	748.03	748.29	748.54	748.79	749.05
29.50	749.30	749.56	749.81	750.06	750.32	750.57	750.83	751.08	751.33	751.59
29.60	751.84	752.10	752.35	752.60	752.86	753.11	753.37	753.62	753.87	754.13
29.70	754.38	754.64	754.89	755.14	755.40	755.65	755.91	756.16	756.41	756.67
29.80	756.92	757.18	757.43	757.68	757.94	758.19	758.45	758.70	758.95	759.21
29.90	759.46	759.72	759.97	760.22	760.48	760.73	760.99	761.24	761.49	761.75
30.00	762.00	762.26	762.51	762.76	763.02	763.27	763.53	763.78	764.03	764.29

Proportional Parts.										
	Inch.	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
	mm.	0.025	0.051	0.076	0.102	0.127	0.152	0.178	0.203	0.229

Table 9.

INCHES INTO MILLIMETERS.

1 inch = 25.40005 mm.

Inches.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
30.00	762.00	762.26	762.51	762.76	763.02	763.27	763.53	763.78	764.03	764.29
30.10	764.54	764.80	765.05	765.30	765.56	765.81	766.07	766.32	766.57	766.83
30.20	767.08	767.34	767.59	767.84	768.10	768.35	768.61	768.86	769.11	769.37
30.30	769.62	769.88	770.13	770.38	770.64	770.89	771.15	771.40	771.65	771.91
30.40	772.16	772.42	772.67	772.92	773.18	773.43	773.69	773.94	774.19	774.45
30.50	774.70	774.96	775.21	775.46	775.72	775.97	776.23	776.48	776.73	776.99
30.60	777.24	777.50	777.75	778.00	778.26	778.51	778.77	779.02	779.27	779.53
30.70	779.78	780.04	780.29	780.54	780.80	781.05	781.31	781.56	781.81	782.07
30.80	782.32	782.58	782.83	783.08	783.34	783.59	783.85	784.10	784.35	784.61
30.90	784.86	785.12	785.37	785.62	785.88	786.13	786.39	786.64	786.89	787.15
31.00	787.40	787.66	787.91	788.16	788.42	788.67	788.93	789.18	789.43	789.69
31.10	789.94	790.20	790.45	790.70	790.96	791.21	791.47	791.72	791.97	792.23
31.20	792.48	792.74	792.99	793.24	793.50	793.75	794.01	794.26	794.51	794.77
31.30	795.02	795.28	795.53	795.78	796.04	796.29	796.55	796.80	797.05	797.31
31.40	797.56	797.82	798.07	798.32	798.58	798.83	799.09	799.34	799.59	799.85
31.50	800.10	800.36	800.61	800.86	801.12	801.37	801.63	801.88	802.13	802.39
31.60	802.64	802.90	803.15	803.40	803.66	803.91	804.17	804.42	804.67	804.93
31.70	805.18	805.44	805.69	805.94	806.20	806.45	806.71	806.96	807.21	807.47
31.80	807.72	807.98	808.23	808.48	808.74	808.99	809.25	809.50	809.75	810.01
31.90	810.26	810.52	810.77	811.02	811.28	811.53	811.79	812.04	812.29	812.55
32.00	812.80									

Proportional Parts.										
	Inch.	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
	mm.	0.025	0.051	0.076	0.102	0.127	0.152	0.178	0.203	0.229

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Millimeters.	0	1	2	3	4	5	6	7	8	9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
0	0.0000	0.0394	0.0787	0.1181	0.1575	0.1968	0.2362	0.2756	0.3150	0.3543
10	0.3937	0.4331	0.4724	0.5118	0.5512	0.5906	0.6299	0.6693	0.7087	0.7480
20	0.7874	0.8268	0.8661	0.9055	0.9449	0.9842	1.0236	1.0630	1.1024	1.1417
30	1.1811	1.2205	1.2598	1.2992	1.3386	1.3780	1.4173	1.4567	1.4961	1.5354
40	1.5748	1.6142	1.6535	1.6929	1.7323	1.7716	1.8110	1.8504	1.8898	1.9291
50	1.9685	2.0079	2.0472	2.0866	2.1260	2.1654	2.2047	2.2441	2.2835	2.3228
60	2.3622	2.4016	2.4409	2.4803	2.5197	2.5590	2.5984	2.6378	2.6772	2.7165
70	2.7559	2.7953	2.8346	2.8740	2.9134	2.9528	2.9921	3.0315	3.0709	3.1102
80	3.1496	3.1890	3.2283	3.2677	3.3071	3.3464	3.3858	3.4252	3.4646	3.5039
90	3.5433	3.5828	3.6220	3.6614	3.7008	3.7402	3.7795	3.8189	3.8583	3.8976
100	3.9370	3.9764	4.0157	4.0551	4.0945	4.1338	4.1732	4.2126	4.2520	4.2913
110	4.3307	4.3701	4.4094	4.4488	4.4882	4.5276	4.5669	4.6063	4.6457	4.6850
120	4.7244	4.7638	4.8031	4.8425	4.8819	4.9212	4.9606	5.0000	5.0394	5.0787
130	5.1181	5.1575	5.1968	5.2362	5.2756	5.3150	5.3543	5.3937	5.4331	5.4724
140	5.5118	5.5512	5.5905	5.6299	5.6693	5.7086	5.7480	5.7874	5.8268	5.8661
150	5.9055	5.9449	5.9842	6.0236	6.0630	6.1024	6.1417	6.1811	6.2205	6.2598
160	6.2992	6.3386	6.3779	6.4173	6.4567	6.4960	6.5354	6.5748	6.6142	6.6535
170	6.6929	6.7323	6.7716	6.8110	6.8504	6.8898	6.9291	6.9685	7.0079	7.0472
180	7.0866	7.1260	7.1653	7.2047	7.2441	7.2834	7.3228	7.3622	7.4016	7.4409
190	7.4803	7.5197	7.5590	7.5984	7.6378	7.6772	7.7165	7.7559	7.7953	7.8346
200	7.8740	7.9134	7.9527	7.9921	8.0315	8.0708	8.1102	8.1496	8.1890	8.2283
210	8.2677	8.3071	8.3464	8.3858	8.4252	8.4646	8.5039	8.5433	8.5827	8.6220
220	8.6614	8.7008	8.7401	8.7795	8.8189	8.8582	8.8976	8.9370	8.9764	9.0157
230	9.0551	9.0945	9.1338	9.1732	9.2126	9.2520	9.2913	9.3307	9.3701	9.4094
240	9.4488	9.4882	9.5275	9.5669	9.6063	9.6456	9.6850	9.7244	9.7638	9.8031
250	9.8425	9.8819	9.9212	9.9606	10.0000	10.0394	10.0787	10.1181	10.1575	10.1968
260	10.2362	10.2756	10.3149	10.3543	10.3937	10.4330	10.4724	10.5118	10.5512	10.5905
270	10.6299	10.6693	10.7086	10.7480	10.7874	10.8268	10.8661	10.9055	10.9449	10.9842
280	11.0236	11.0630	11.1023	11.1417	11.1811	11.2204	11.2598	11.2992	11.3338	11.3779
290	11.4173	11.4568	11.4960	11.5354	11.5748	11.6142	11.6535	11.6929	11.7323	11.7716
300	11.8110	11.8504	11.8897	11.9291	11.9685	12.0078	12.0472	12.0866	12.1260	12.1653
310	12.2047	12.2441	12.2834	12.3228	12.3622	12.4016	12.4409	12.4803	12.5197	12.5590
320	12.5984	12.6378	12.6771	12.7165	12.7559	12.7952	12.8346	12.8740	12.9134	12.9527
330	12.9921	13.0315	13.0708	13.1102	13.1496	13.1890	13.2283	13.2677	13.3071	13.3464
340	13.3858	13.4252	13.4645	13.5039	13.5433	13.5826	13.6220	13.6614	13.7008	13.7401
350	13.7795	13.8189	13.8582	13.8976	13.9370	13.9764	14.0157	14.0551	14.0945	14.1338
360	14.1732	14.2126	14.2519	14.2913	14.3307	14.3700	14.4094	14.4488	14.4882	14.5275
370	14.5669	14.6063	14.6456	14.6850	14.7244	14.7638	14.8031	14.8425	14.8819	14.9212
380	14.9606	15.0000	15.0393	15.0787	15.1181	15.1574	15.1968	15.2362	15.2756	15.3149
390	15.3543	15.3937	15.4330	15.4724	15.5118	15.5512	15.5905	15.6299	15.6693	15.7086
400	15.7480	15.7874	15.8267	15.8661	15.9055	15.9448	15.9842	16.0236	16.0630	16.1023

Tenths of a millimeter.				Hundredths of a millimeter.			
mm.	Inch.	mm.	Inch.	mm.	Inch.	mm.	Inch.
0.1	0.0039	0.6	0.0236	0.01	0.0004	0.06	0.0024
.2	.0079	.7	.0276	.02	.0008	.07	.0028
.3	.0118	.8	.0315	.03	.0012	.08	.0031
.4	.0157	.9	.0354	.04	.0016	.09	.0035
.5	.0197	1.0	.0394	.05	.0020	.10	.0039

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Milli-meters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
400	15.748	15.752	15.756	15.760	15.764	15.768	15.772	15.776	15.779	15.783
401	15.787	15.791	15.795	15.799	15.803	15.807	15.811	15.815	15.819	15.823
402	15.827	15.831	15.835	15.839	15.842	15.846	15.850	15.854	15.858	15.862
403	15.866	15.870	15.874	15.878	15.882	15.886	15.890	15.894	15.898	15.902
404	15.905	15.909	15.913	15.917	15.921	15.925	15.929	15.933	15.937	15.941
405	15.945	15.949	15.953	15.957	15.961	15.965	15.968	15.972	15.976	15.980
406	15.984	15.988	15.992	15.996	16.000	16.004	16.008	16.012	16.016	16.020
407	16.024	16.028	16.031	16.035	16.039	16.043	16.047	16.051	16.055	16.059
408	16.063	16.067	16.071	16.075	16.079	16.083	16.087	16.091	16.094	16.098
409	16.102	16.106	16.110	16.114	16.118	16.122	16.126	16.130	16.134	16.138
410	16.142	16.146	16.150	16.154	16.157	16.161	16.165	16.169	16.173	16.177
411	16.181	16.185	16.189	16.193	16.197	16.201	16.205	16.209	16.213	16.217
412	16.220	16.224	16.228	16.232	16.236	16.240	16.244	16.248	16.252	16.256
413	16.260	16.264	16.268	16.272	16.276	16.279	16.283	16.287	16.291	16.295
414	16.299	16.303	16.307	16.311	16.315	16.319	16.323	16.327	16.331	16.335
415	16.339	16.342	16.346	16.350	16.354	16.358	16.362	16.366	16.370	16.374
416	16.378	16.382	16.386	16.390	16.394	16.398	16.402	16.405	16.409	16.413
417	16.417	16.421	16.425	16.429	16.433	16.437	16.441	16.445	16.449	16.453
418	16.457	16.461	16.465	16.468	16.472	16.476	16.480	16.484	16.488	16.492
419	16.496	16.500	16.504	16.508	16.512	16.516	16.520	16.524	16.528	16.531
420	16.535	16.539	16.543	16.547	16.551	16.555	16.559	16.563	16.567	16.571
421	16.575	16.579	16.583	16.587	16.591	16.594	16.598	16.602	16.606	16.610
422	16.614	16.618	16.622	16.626	16.630	16.634	16.638	16.642	16.646	16.650
423	16.654	16.657	16.661	16.665	16.669	16.673	16.677	16.681	16.685	16.689
424	16.693	16.697	16.701	16.705	16.709	16.713	16.717	16.720	16.724	16.728
425	16.732	16.736	16.740	16.744	16.748	16.752	16.756	16.760	16.764	16.768
426	16.772	16.776	16.779	16.783	16.787	16.791	16.795	16.799	16.803	16.807
427	16.811	16.815	16.819	16.823	16.827	16.831	16.835	16.839	16.842	16.846
428	16.850	16.854	16.858	16.862	16.866	16.870	16.874	16.878	16.882	16.886
429	16.890	16.894	16.898	16.902	16.905	16.909	16.913	16.917	16.921	16.925
430	16.929	16.933	16.937	16.941	16.945	16.949	16.953	16.957	16.961	16.965
431	16.968	16.972	16.976	16.980	16.984	16.988	16.992	16.996	17.000	17.004
432	17.008	17.012	17.016	17.020	17.024	17.028	17.031	17.035	17.039	17.043
433	17.047	17.051	17.055	17.059	17.063	17.067	17.071	17.075	17.079	17.083
434	17.087	17.091	17.094	17.098	17.102	17.106	17.110	17.114	17.118	17.122
435	17.126	17.130	17.134	17.138	17.142	17.146	17.150	17.154	17.157	17.161
436	17.165	17.169	17.173	17.177	17.181	17.185	17.189	17.193	17.197	17.201
437	17.205	17.209	17.213	17.217	17.220	17.224	17.228	17.232	17.236	17.240
438	17.244	17.248	17.252	17.256	17.260	17.264	17.268	17.272	17.276	17.279
439	17.283	17.287	17.291	17.295	17.299	17.303	17.307	17.311	17.315	17.319
440	17.323	17.327	17.331	17.335	17.339	17.342	17.346	17.350	17.354	17.358
441	17.362	17.366	17.370	17.374	17.378	17.382	17.386	17.390	17.394	17.398
442	17.402	17.405	17.409	17.413	17.417	17.421	17.425	17.429	17.433	17.437
443	17.441	17.445	17.449	17.453	17.457	17.461	17.465	17.468	17.472	17.476
444	17.480	17.484	17.488	17.492	17.496	17.500	17.504	17.508	17.512	17.516
445	17.520	17.524	17.528	17.531	17.535	17.539	17.543	17.547	17.551	17.555
446	17.559	17.563	17.567	17.571	17.575	17.579	17.583	17.587	17.591	17.594
447	17.598	17.602	17.606	17.610	17.614	17.618	17.622	17.626	17.630	17.634
448	17.638	17.642	17.646	17.650	17.654	17.657	17.661	17.665	17.669	17.673
449	17.677	17.681	17.685	17.689	17.693	17.697	17.701	17.705	17.709	17.713
450	17.717	17.720	17.724	17.728	17.732	17.736	17.740	17.744	17.748	17.752

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Millimeters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
450	17.717	17.720	17.724	17.728	17.732	17.736	17.740	17.744	17.748	17.752
451	17.756	17.760	17.764	17.768	17.772	17.776	17.779	17.783	17.787	17.791
452	17.795	17.799	17.803	17.807	17.811	17.815	17.819	17.823	17.827	17.831
453	17.835	17.839	17.842	17.846	17.850	17.854	17.858	17.862	17.866	17.870
454	17.874	17.878	17.882	17.886	17.890	17.894	17.898	17.902	17.905	17.909
455	17.913	17.917	17.921	17.925	17.929	17.933	17.937	17.941	17.945	17.949
456	17.953	17.957	17.961	17.965	17.968	17.972	17.976	17.980	17.984	17.988
457	17.992	17.996	18.000	18.004	18.008	18.012	18.016	18.020	18.024	18.028
458	18.031	18.035	18.039	18.043	18.047	18.051	18.055	18.059	18.063	18.067
459	18.071	18.075	18.079	18.083	18.087	18.091	18.094	18.098	18.102	18.106
460	18.110	18.114	18.118	18.122	18.126	18.130	18.134	18.138	18.142	18.146
461	18.150	18.154	18.157	18.161	18.165	18.169	18.173	18.177	18.181	18.185
462	18.189	18.193	18.197	18.201	18.205	18.209	18.213	18.216	18.220	18.224
463	18.228	18.232	18.236	18.240	18.244	18.248	18.252	18.256	18.260	18.264
464	18.268	18.272	18.276	18.279	18.283	18.287	18.291	18.295	18.299	18.303
465	18.307	18.311	18.315	18.319	18.323	18.327	18.331	18.335	18.339	18.342
466	18.346	18.350	18.354	18.358	18.362	18.366	18.370	18.374	18.378	18.382
467	18.386	18.390	18.394	18.398	18.402	18.405	18.409	18.413	18.417	18.421
468	18.425	18.429	18.433	18.437	18.441	18.445	18.449	18.453	18.457	18.461
469	18.465	18.468	18.472	18.476	18.480	18.484	18.488	18.492	18.496	18.500
470	18.504	18.508	18.512	18.516	18.520	18.524	18.528	18.531	18.535	18.539
471	18.543	18.547	18.551	18.555	18.559	18.563	18.567	18.571	18.575	18.579
472	18.583	18.587	18.591	18.594	18.598	18.602	18.606	18.610	18.614	18.618
473	18.622	18.626	18.630	18.634	18.638	18.642	18.646	18.650	18.654	18.657
474	18.661	18.665	18.669	18.673	18.677	18.681	18.685	18.689	18.693	18.697
475	18.701	18.705	18.709	18.713	18.716	18.720	18.724	18.728	18.732	18.736
476	18.740	18.744	18.748	18.752	18.756	18.760	18.764	18.768	18.772	18.776
477	18.779	18.783	18.787	18.791	18.795	18.799	18.803	18.807	18.811	18.815
478	18.819	18.823	18.827	18.831	18.835	18.839	18.842	18.846	18.850	18.854
479	18.858	18.862	18.866	18.870	18.874	18.878	18.882	18.886	18.890	18.894
480	18.898	18.902	18.905	18.909	18.913	18.917	18.921	18.925	18.929	18.933
481	18.937	18.941	18.945	18.949	18.953	18.957	18.961	18.965	18.968	18.972
482	18.976	18.980	18.984	18.988	18.992	18.996	19.000	19.004	19.008	19.012
483	19.016	19.020	19.024	19.028	19.031	19.035	19.039	19.043	19.047	19.051
484	19.055	19.059	19.063	19.067	19.071	19.075	19.079	19.083	19.087	19.091
485	19.094	19.098	19.102	19.106	19.110	19.114	19.118	19.122	19.126	19.130
486	19.134	19.138	19.142	19.146	19.150	19.154	19.157	19.161	19.165	19.169
487	19.173	19.177	19.181	19.185	19.189	19.193	19.197	19.201	19.205	19.209
488	19.213	19.216	19.220	19.224	19.228	19.232	19.236	19.240	19.244	19.248
489	19.252	19.256	19.260	19.264	19.268	19.272	19.276	19.279	19.283	19.287
490	19.291	19.295	19.299	19.303	19.307	19.311	19.315	19.319	19.323	19.327
491	19.331	19.335	19.339	19.342	19.346	19.350	19.354	19.358	19.362	19.366
492	19.370	19.374	19.378	19.382	19.386	19.390	19.394	19.398	19.402	19.405
493	19.409	19.413	19.417	19.421	19.425	19.429	19.433	19.437	19.441	19.445
494	19.449	19.453	19.457	19.461	19.465	19.468	19.472	19.476	19.480	19.484
495	19.488	19.492	19.496	19.500	19.504	19.508	19.512	19.516	19.520	19.524
496	19.528	19.531	19.535	19.539	19.543	19.547	19.551	19.555	19.559	19.563
497	19.567	19.571	19.575	19.579	19.583	19.587	19.591	19.594	19.598	19.602
498	19.606	19.610	19.614	19.618	19.622	19.626	19.630	19.634	19.638	19.642
499	19.646	19.650	19.654	19.657	19.661	19.665	19.669	19.673	19.677	19.681
500	19.685	19.689	19.693	19.697	19.701	19.705	19.709	19.713	19.716	19.720

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Milli-meters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
500	19.685	19.689	19.693	19.697	19.701	19.705	19.709	19.713	19.716	19.720
501	19.724	19.728	19.732	19.736	19.740	19.744	19.748	19.752	19.756	19.760
502	19.764	19.768	19.772	19.776	19.779	19.783	19.787	19.791	19.795	19.799
503	19.803	19.807	19.811	19.815	19.819	19.823	19.827	19.831	19.835	19.839
504	19.842	19.846	19.850	19.854	19.858	19.862	19.866	19.870	19.874	19.878
505	19.882	19.886	19.890	19.894	19.898	19.902	19.905	19.909	19.913	19.917
506	19.921	19.925	19.929	19.933	19.937	19.941	19.945	19.949	19.953	19.957
507	19.961	19,965	19.968	19.972	19.976	19.980	19.984	19.988	19.992	19.996
508	20.000	20.004	20.008	20.012	20.016	20.020	20.024	20.028	20.031	20.035
509	20.039	20.043	20.047	20.051	20.055	20.059	20.063	20.067	20.071	20.075
510	20.079	20.083	20.087	20.091	20.094	20.098	20.102	20.106	20.110	20.114
511	20.118	20.122	20.126	20.130	20.134	20.138	20.142	20.146	20.150	20.154
512	20.157	20.161	20.165	20.169	20.173	20.177	20.181	20.185	20.189	20.193
513	20.197	20.201	20.205	20.209	20.213	20.216	20.220	20.224	20.228	20.232
514	20.236	20.240	20.244	20.248	20.252	20.256	20.260	20.264	20.268	20.272
515	20.276	20.279	20.283	20.287	20.291	20.295	20.299	20.303	20.307	20.311
516	20.315	20.319	20.323	20.327	20.331	20.335	20.339	20.342	20.346	20.350
517	20.354	20.358	20.362	20.366	20.370	20.374	20.378	20.382	20.386	20.390
518	20.394	20.398	20.402	20.405	20.409	20.413	20.417	20.421	20.425	20.429
519	20.433	20.437	20.441	20.445	20.449	20.453	20.457	20.461	20.465	20.468
520	20.472	20.476	20.480	20.484	20.488	20.492	20.496	20.500	20.504	20.508
521	20.512	20.516	20.520	20.524	20.528	20.531	20.535	20.539	20.543	20.547
522	20.551	20.555	20.559	20.563	20.567	20.571	20.575	20.579	20.583	20.587
523	20.591	20.594	20.598	20.602	20.606	20.610	20.614	20.618	20.622	20.626
524	20.630	20.634	20.638	20.642	20.646	20.650	20.654	20.657	20.661	20.665
525	20.669	20.673	20.677	20.681	20.685	20.689	20.693	20.697	20.701	20.705
526	20.709	20.713	20.716	20.720	20.724	20.728	20.732	20.736	20.740	20.744
527	20.748	20.752	20.756	20.760	20.764	20.768	20.772	20.776	20.779	20.783
528	20.787	20.791	20.795	20.799	20.803	20.807	20.811	20.815	20.819	20.823
529	20.827	20.831	20.835	20.839	20.842	20.846	20.850	20.854	20.858	20.862
530	20.866	20.870	20.874	20.878	20.882	20.886	20.890	20.894	20.898	20.902
531	20.905	20.909	20.913	20.917	20.921	20.925	20.929	20.933	20.937	20.941
532	20.945	20.949	20.953	20.957	20.961	20.965	20.968	20.972	20.976	20.980
533	20.984	20.988	20.992	20.996	21.000	21.004	21,008	21.012	21.016	21.020
534	21.024	21.028	21.031	21.035	21.039	21.043	21.047	21.051	21.055	21.059
535	21.063	21.067	21.071	21.075	21.079	21.083	21.087	21.091	21.094	21.098
536	21.102	21.106	21.110	21.114	21.118	21.122	21.126	21.130	21.134	21.138
537	21.142	21.146	21.150	21.154	21.157	21.161	21.165	21.169	21.173	21.177
538	21.181	21.185	21.189	21.193	21.197	21.201	21.205	21.209	21.213	21.216
539	21.220	21.224	21.228	21.232	21.236	21.240	21.244	21.248	21.252	21.256
540	21.260	21.264	21.268	21.272	21.276	21.279	21.283	21.287	21.291	21.295
541	21.299	21.303	21.307	21.311	21.315	21.319	21.323	21.327	21.331	21.335
542	21.339	21.342	21.346	21.350	21.354	21.358	21.362	21.366	21.370	21.374
543	21.378	21.382	21.386	21.390	21.394	21.398	21.402	21.405	21.409	21.413
544	21.417	21.421	21.425	21.429	21.433	21.437	21.441	21.445	21.449	21.453
545	21.457	21.461	21.465	21.468	21.472	21.476	21.480	21.484	21.488	21.492
546	21.496	21.500	21.504	21.508	21.512	21.516	21.520	21.524	21.528	21.531
547	21.535	21.539	21.543	21.547	21.551	21.555	21.559	21.563	21.567	21.571
548	21.575	21.579	21.583	21.587	21.591	21.594	21.598	21.602	21.606	21.610
549	21.614	21.618	21.622	21.626	21.630	21.634	21.638	21.642	21.646	21.650
550	21.654	21.657	21.661	21.665	21.669	21.673	21.677	21.681	21.685	21.689

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Millimeters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
550	21.654	21.657	21.661	21.665	21.669	21.673	21.677	21.681	21.685	21.689
551	21.693	21.697	21.701	21.705	21.709	21.713	21.716	21.720	21.724	21.728
552	21.732	21.736	21.740	21.744	21.748	21.752	21.756	21.760	21.764	21.768
553	21.772	21.776	21.779	21.783	21.787	21.791	21.795	21.799	21.803	21.807
554	21.811	21.815	21.819	21.823	21.827	21.831	21.835	21.839	21.842	21.846
555	21.850	21.854	21.858	21.862	21.866	21.870	21.874	21.878	21.882	21.886
556	21.890	21.894	21.898	21.902	21.905	21.909	21.913	21.917	21.921	21.925
557	21.929	21.933	21.937	21.941	21.945	21.949	21.953	21.957	21.961	21.965
558	21.968	21.972	21.976	21.980	21.984	21.988	21.992	21.996	22.000	22.004
559	22.008	22.012	22.016	22.020	22.024	22.028	22.031	22.035	22.039	22.043
560	22.047	22.051	22.055	22.059	22.063	22.067	22.071	22.075	22.079	22.083
561	22.087	22.091	22.094	22.098	22.102	22.106	22.110	22.114	22.118	22.122
562	22.126	22.130	22.134	22.138	22.142	22.146	22.150	22.153	22.157	22.161
563	22.165	22.169	22.173	22.177	22.181	22.185	22.189	22.193	22.197	22.201
564	22.205	22.209	22.213	22.216	22.220	22.224	22.228	22.232	22.236	22.240
565	22.244	22.248	22.252	22.256	22.260	22.264	22.268	22.272	22.276	22.279
566	22.283	22.287	22.291	22.295	22.299	22.303	22.307	22.311	22.315	22.319
567	22.323	22.327	22.331	22.335	22.339	22.342	22.346	22.350	22.354	22.358
568	22.362	22.366	22.370	22.374	22.378	22.382	22.386	22.390	22.394	22.398
569	22.402	22.405	22.409	22.413	22.417	22.421	22.425	22.429	22.433	22.437
570	22.441	22.445	22.449	22.453	22.457	22.461	22.465	22.468	22.472	22.476
571	22.480	22.484	22.488	22.492	22.496	22.500	22.504	22.508	22.512	22.516
572	22.520	22.524	22.528	22.531	22.535	22.539	22.543	22.547	22.551	22.555
573	22.559	22.563	22.567	22.571	22.575	22.579	22.583	22.587	22.591	22.594
574	22.598	22.602	22.606	22.610	22.614	22.618	22.622	22.626	22.630	22.634
575	22.638	22.642	22.646	22.650	22.653	22.657	22.661	22.665	22.669	22.673
576	22.677	22.681	22.685	22.689	22.693	22.697	22.701	22.705	22.709	22.713
577	22.716	22.720	22.724	22.728	22.732	22.736	22.740	22.744	22.748	22.752
578	22.756	22.760	22.764	22.768	22.772	22.776	22.779	22.783	22.787	22.791
579	22.795	22.799	22.803	22.807	22.811	22.815	22.819	22.823	22.827	22.831
580	22.835	22.839	22.842	22.846	22.850	22.854	22.858	22.862	22.866	22.870
581	22.874	22.878	22.882	22.886	22.890	22.894	22.898	22.902	22.905	22.909
582	22.913	22.917	22.921	22.925	22.929	22.933	22.937	22.941	22.945	22.949
583	22.953	22.957	22.961	22.965	22.968	22.972	22.976	22.980	22.984	22.988
584	22.992	22.996	23.000	23.004	23.008	23.012	23.016	23.020	23.024	23.028
585	23.031	23.035	23.039	23.043	23.047	23.051	23.055	23.059	23.063	23.067
586	23.071	23.075	23.079	23.083	23.087	23.091	23.094	23.098	23.102	23.106
587	23.110	23.114	23.118	23.122	23.126	23.130	23.134	23.138	23.142	23.146
588	23.150	23.153	23.157	23.161	23.165	23.169	23.173	23.177	23.181	23.185
589	23.189	23.193	23.197	23.201	23.205	23.209	23.213	23.216	23.220	23.224
590	23.228	23.232	23.236	23.240	23.244	23.248	23.252	23.256	23.260	23.264
591	23.268	23.272	23.276	23.279	23.283	23.287	23.291	23.295	23.299	23.303
592	23.307	23.311	23.315	23.319	23.323	23.327	23.331	23.335	23.339	23.342
593	23.346	23.350	23.354	23.358	23.362	23.366	23.370	23.374	23.378	23.382
594	23.386	23.390	23.394	23.398	23.402	23.405	23.409	23.413	23.417	23.421
595	23.425	23.429	23.433	23.437	23.441	23.445	23.449	23.453	23.457	23.461
596	23.465	23.468	23.472	23.476	23.480	23.484	23.488	23.492	23.496	23.500
597	23.504	23.508	23.512	23.516	23.520	23.524	23.528	23.531	23.535	23.539
598	23.543	23.547	23.551	23.555	23.559	23.563	23.567	23.571	23.575	23.579
599	23.583	23.587	23.591	23.594	23.598	23.602	23.606	23.610	23.614	23.618
600	23.622	23.626	23.630	23.634	23.638	23.642	23.646	23.650	23.653	23.657

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Millimeters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
600	23.622	23.626	23.630	23.634	23.638	23.642	23.646	23.650	23.653	23.657
601	23.661	23.665	23.669	23.673	23.677	23.681	23.685	23.689	23.693	23.697
602	23.701	23.705	23.709	23.713	23.716	23.720	23.724	23.728	23.732	23.736
603	23.740	23.744	23.748	23.752	23.756	23.760	23.764	23.768	23.772	23.776
604	23.779	23.783	23.787	23.791	23.795	23.799	23.803	23.807	23.811	23.815
605	23.819	23.823	23.827	23.831	23.835	23.839	23.842	23.846	23.850	23.854
606	23.858	23.862	23.866	23.870	23.874	23.878	23.882	23.886	23.890	23.894
607	23.898	23.902	23.905	23.909	23.913	23.917	23.921	23.925	23.929	23.933
608	23.937	23.941	23.945	23.949	23.953	23.957	23.961	23.965	23.968	23.972
609	23.976	23.980	23.984	23.988	23.992	23.996	24.000	24.004	24.008	24.012
610	24.016	24.020	24.024	24.028	24.031	24.035	24.039	24.043	24.047	24.051
611	24.055	24.059	24.063	24.067	24.071	24.075	24.079	24.083	24.087	24.091
612	24.094	24.098	24.102	24.106	24.110	24.114	24.118	24.122	24.126	24.130
613	24.134	24.138	24.142	24.146	24.150	24.153	24.157	24.161	24.165	24.169
614	24.173	24.177	24.181	24.185	24.189	24.193	24.197	24.201	24.205	24.209
615	24.213	24.216	24.220	24.224	24.228	24.232	24.236	24.240	24.244	24.248
616	24.252	24.256	24.260	24.264	24.268	24.272	24.276	24.279	24.283	24.287
617	24.291	24.295	24.299	24.303	24.307	24.311	24.315	24.319	24.323	24.327
618	24.331	24.335	24.339	24.342	24.346	24.350	24.354	24.358	24.362	24.366
619	24.370	24.374	24.378	24.382	24.386	24.390	24.394	24.398	24.402	24.405
620	24.409	24.413	24.417	24.421	24.425	24.429	24.433	24.437	24.441	24.445
621	24.449	24.453	24.457	24.461	24.465	24.468	24.472	24.476	24.480	24.484
622	24.488	24.492	24.496	24.500	24.504	24.508	24.512	24.516	24.520	24.524
623	24.528	24.531	24.535	24.539	24.543	24.547	24.551	24.555	24.559	24.563
624	24.567	24.571	24.575	24.579	24.583	24.587	24.591	24.594	24.598	24.602
625	24.606	24.610	24.614	24.618	24.622	24.626	24.630	24.634	24.638	24.642
626	24.646	24.650	24.653	24.657	24.661	24.665	24.669	24.673	24.677	24.681
627	24.685	24.689	24.693	24.697	24.701	24.705	24.709	24.713	24.716	24.720
628	24.724	24.728	24.732	24.736	24.740	24.744	24.748	24.752	24.756	24.760
629	24.764	24.768	24.772	24.776	24.779	24.783	24.787	24.791	24.795	24.799
630	24.803	24.807	24.811	24.815	24.819	24.823	24.827	24.831	24.835	24.839
631	24.842	24.846	24.850	24.854	24.858	24.862	24.866	24.870	24.874	24.878
632	24.882	24.886	24.890	24.894	24.898	24.902	24.905	24.909	24.913	24.917
633	24.921	24.925	24.929	24.933	24.937	24.941	24.945	24.949	24.953	24.957
634	24.961	24.965	24.968	24.972	24.976	24.980	24.984	24.988	24.992	24.996
635	25.000	25.004	25.008	25.012	25.016	25.020	25.024	25.028	25.031	25.035
636	25.039	25.043	25.047	25.051	25.055	25.059	25.063	25.067	25.071	25.075
637	25.079	25.083	25.087	25.091	25.094	25.098	25.102	25.106	25.110	25.114
638	25.118	25.122	25.126	25.130	25.134	25.138	25.142	25.146	25.150	25.153
639	25.157	25.161	25.165	25.169	25.173	25.177	25.181	25.185	25.189	25.193
640	25.197	25.201	25.205	25.209	25.213	25.216	25.220	25.224	25.228	25.232
641	25.236	25.240	25.244	25.248	25.252	25.256	25.260	25.264	25.268	25.272
642	25.276	25.279	25.283	25.287	25.291	25.295	25.299	25.303	25.307	25.311
643	25.315	25.319	25.323	25.327	25.331	25.335	25.339	25.342	25.346	25.350
644	25.354	25.358	25.362	25.366	25.370	25.374	25.378	25.382	25.386	25.390
645	25.394	25.398	25.402	25.405	25.409	25.413	25.417	25.421	25.425	25.429
646	25.433	25.437	25.441	25.445	25.449	25.453	25.457	25.461	25.465	25.468
647	25.472	25.476	25.480	25.484	25.488	25.492	25.496	25.500	25.504	25.508
648	25.512	25.516	25.520	25.524	25.528	25.531	25.535	25.539	25.543	25.547
649	25.551	25.555	25.559	25.563	25.567	25.571	25.575	25.579	25.583	25.587
650	25.591	25.594	25.598	25.602	25.606	25.610	25.614	25.618	25.622	25.626

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Milli-meters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
650	25.591	25.594	25.598	25.602	25.606	25.610	25.614	25.618	25.622	25.626
651	25.630	25.634	25.638	25.642	25.646	25.650	25.653	25.657	25.661	25.665
652	25.669	25.673	25.677	25.681	25.685	25.689	25.693	25.697	25.701	25.705
653	25.709	25.713	25.716	25.720	25.724	25.728	25.732	25.736	25.740	25.744
654	25.748	25.752	25.756	25.760	25.764	25.768	25.772	25.776	25.779	25.783
655	25.787	25.791	25.795	25.799	25.803	25.807	25.811	25.815	25.819	25.823
656	25.827	25.831	25.835	25.839	25.842	25.846	25.850	25.854	25.858	25.862
657	25.866	25.870	25.874	25.878	25.882	25.886	25.890	25.894	25.898	25.902
658	25.905	25.909	25.913	25.917	25.921	25.925	25.929	25.933	25.937	25.941
659	25.945	25.949	25.953	25.957	25.961	25.965	25.968	25.972	25.976	25.980
660	25.984	25.988	25.992	25.996	26.000	26.004	26.008	26.012	26.016	26.020
661	26.024	26.028	26.031	26.035	26.039	26.043	26.047	26.051	26.055	26.059
662	26.063	26.067	26.071	26.075	26.079	26.083	26.087	26.090	26.094	26.098
663	26.102	26.106	26.110	26.114	26.118	26.122	26.126	26.130	26.134	26.138
664	26.142	26.146	26.150	26.153	26.157	26.161	26.165	26.169	26.173	26.177
665	26.181	26.185	26.189	26.193	26.197	26.201	26.205	26.209	26.213	26.216
666	26.220	26.224	26.228	26.232	26.236	26.240	26.244	26.248	26.252	26.256
667	26.260	26.264	26.268	26.272	26.276	26.279	26.283	26.287	26.291	26.295
668	26.299	26.303	26.307	26.311	26.315	26.319	26.323	26.327	26.331	26.335
669	26.339	26.342	26.346	26.350	26.354	26.358	26.362	26.366	26.370	26.374
670	26.378	26.382	26.386	26.390	26.394	26.398	26.402	26.405	26.409	26.413
671	26.417	26.421	26.425	26.429	26.433	26.437	26.441	26.445	26.449	26.453
672	26.457	26.461	26.465	26.468	26.472	26.476	26.480	26.484	26.488	26.492
673	26.496	26.500	26.504	26.508	26.512	26.516	26.520	26.524	26.528	26.531
674	26.535	26.539	26.543	26.547	26.551	26.555	26.559	26.563	26.567	26.571
675	26.575	26.579	26.583	26.587	26.590	26.594	26.598	26.602	26.606	26.610
676	26.614	26.618	26.622	26.626	26.630	26.634	26.638	26.642	26.646	26.650
677	26.653	26.657	26.661	26.665	26.669	26.673	26.677	26.681	26.685	26.689
678	26.693	26.697	26.701	26.705	26.709	26.713	26.716	26.720	26.724	26.728
679	26.732	26.736	26.740	26.744	26.748	26.752	26.756	26.760	26.764	26.768
680	26.772	26.776	26.779	26.783	26.787	26.791	26.795	26.799	26.803	26.807
681	26.811	26.815	26.819	26.823	26.827	26.831	26.835	26.838	26.842	26.846
682	26.850	26.854	26.858	26.862	26.866	26.870	26.874	26.878	26.882	26.886
683	26.890	26.894	26.898	26.902	26.905	26.909	26.913	26.917	26.921	26.925
684	26.929	26.933	26.937	26.941	26.945	26.949	26.953	26.957	26.961	26.965
685	26.968	26.972	26.976	26.980	26.984	26.988	26.992	26.996	27.000	27.004
686	27.008	27.012	27.016	27.020	27.024	27.028	27.031	27.035	27.039	27.043
687	27.047	27.051	27.055	27.059	27.063	27.067	27.071	27.075	27.079	27.083
688	27.087	27.090	27.094	27.098	27.102	27.106	27.110	27.114	27.118	27.122
689	27.126	27.130	27.134	27.138	27.142	27.146	27.150	27.153	27.157	27.161
690	27.165	27.169	27.173	27.177	27.181	27.185	27.189	27.193	27.197	27.201
691	27.205	27.209	27.213	27.216	27.220	27.224	27.228	27.232	27.236	27.240
692	27.244	27.248	27.252	27.256	27.260	27.264	27.268	27.272	27.276	27.279
693	27.283	27.287	27.291	27.295	27.299	27.303	27.307	27.311	27.315	27.319
694	27.323	27.327	27.331	27.335	27.339	27.342	27.346	27.350	27.354	27.358
695	27.362	27.366	27.370	27.374	27.378	27.382	27.386	27.390	27.394	27.398
696	27.402	27.405	27.409	27.413	27.417	27.421	27.425	27.429	27.433	27.437
697	27.441	27.445	27.449	27.453	27.457	27.461	27.465	27.468	27.472	27.476
698	27.480	27.484	27.488	27.492	27.496	27.500	27.504	27.508	27.512	27.516
699	27.520	27.524	27.528	27.531	27.535	27.539	27.543	27.547	27.551	27.555
700	27.559	27.563	27.567	27.571	27.575	27.579	27.583	27.587	27.590	27.594

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Millimeters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
700	27.559	27.563	27.567	27.571	27.575	27.579	27.583	27.587	27.590	27.594
701	27.598	27.602	27.606	27.610	27.614	27.618	27.622	27.626	27.630	27.634
702	27.638	27.642	27.646	27.650	27.653	27.657	27.661	27.665	27.669	27.673
703	27.677	27.681	27.685	27.689	27.693	27.697	27.701	27.705	27.709	27.713
704	27.716	27.720	27.724	27.728	27.732	27.736	27.740	27.744	27.748	27.752
705	27.756	27.760	27.764	27.768	27.772	27.776	27.779	27.783	27.787	27.791
706	27.795	27.799	27.803	27.807	27.811	27.815	27.819	27.823	27.827	27.831
707	27.835	27.839	27.842	27.846	27.850	27.854	27.858	27.862	27.866	27.870
708	27.874	27.878	27.882	27.886	27.890	27.894	27.898	27.902	27.905	27.909
709	27.913	27.917	27.921	27.925	27.929	27.933	27.937	27.941	27.945	27.949
710	27.953	27.957	27.961	27.965	27.968	27.972	27.976	27.980	27.984	27.988
711	27.992	27.996	28.000	28.004	28.008	28.012	28.016	28.020	28.024	28.028
712	28.031	28.035	28.039	28.043	28.047	28.051	28.055	28.059	28.063	28.067
713	28.071	28.075	28.079	28.083	28.087	28.090	28.094	28.098	28.102	28.106
714	28.110	28.114	28.118	28.122	28.126	28.130	28.134	28.138	28.142	28.146
715	28.150	28.153	28.157	28.161	28.165	28.169	28.173	28.177	28.181	28.185
716	28.189	28.193	28.197	28.201	28.205	28.209	28.213	28.216	28.220	28.224
717	28.228	28.232	28.236	28.240	28.244	28.248	28.252	28.256	28.260	28.264
718	28.268	28.272	28.276	28.279	28.283	28.287	28.291	28.295	28.299	28.303
719	28.307	28.311	28.315	28.319	28.323	28.327	28.331	28.335	28.339	28.342
720	28.346	28.350	28.354	28.358	28.362	28.366	28.370	28.374	28.378	28.382
721	28.386	28.390	28.394	28.398	28.402	28.405	28.409	28.413	28.417	28.421
722	28.425	28.429	28.433	28.437	28.441	28.445	28.449	28.453	28.457	28.461
723	28.465	28.468	28.472	28.476	28.480	28.484	28.488	28.492	28.496	28.500
724	28.504	28.508	28.512	28.516	28.520	28.524	28.528	28.531	28.535	28.539
725	28.543	28.547	28.551	28.555	28.559	28.563	28.567	28.571	28.575	28.579
726	28.583	28.587	28.590	28.594	28.598	28.602	28.606	28.610	28.614	28.618
727	28.622	28.626	28.630	28.634	28.638	28.642	28.646	28.650	28.653	28.657
728	28.661	28.665	28.669	28.673	28.677	28.681	28.685	28.689	28.693	28.697
729	28.701	28.705	28.709	28.713	28.716	28.720	28.724	28.728	28.732	28.736
730	28.740	28.744	28.748	28.752	28.756	28.760	28.764	28.768	28.772	28.776
731	28.779	28.783	28.787	28.791	28.795	28.799	28.803	28.807	28.811	28.815
732	28.819	28.823	28.827	28.831	28.835	28.839	28.842	28.846	28.850	28.854
733	28.858	28.862	28.866	28.870	28.874	28.878	28.882	28.886	28.890	28.894
734	28.898	28.902	28.905	28.909	28.913	28.917	28.921	28.925	28.929	28.933
735	28.937	28.941	28.945	28.949	28.953	28.957	28.961	28.965	28.968	28.972
736	28.976	28.980	28.984	28.988	28.992	28.996	29.000	29.004	29.008	29.012
737	29.016	29.020	29.024	29.028	29.031	29.035	29.039	29.043	29.047	29.051
738	29.055	29.059	29.063	29.067	29.071	29.075	29.079	29.083	29.087	29.090
739	29.094	29.098	29.102	29.106	29.110	29.114	29.118	29.122	29.126	29.130
740	29.134	29.138	29.142	29.146	29.150	29.153	29.157	29.161	29.165	29.169
741	29.173	29.177	29.181	29.185	29.189	29.193	29.197	29.201	29.205	29.209
742	29.213	29.216	29.220	29.224	29.228	29.232	29.236	29.240	29.244	29.248
743	29.252	29.256	29.260	29.264	29.268	29.272	29.276	29.279	29.283	29.287
744	29.291	29.295	29.299	29.303	29.307	29.311	29.315	29.319	29.323	29.327
745	29.331	29.335	29.339	29.342	29.346	29.350	29.354	29.358	29.362	29.366
746	29.370	29.374	29.378	29.382	29.386	29.390	29.394	29.398	29.402	29.405
747	29.409	29.413	29.417	29.421	29.425	29.429	29.433	29.437	29.441	29.445
748	29.449	29.453	29.457	29.461	29.465	29.468	29.472	29.476	29.480	29.484
749	29.488	29.492	29.496	29.500	29.504	29.508	29.512	29.516	29.520	29.524
750	29.528	29.531	29.535	29.539	29.543	29.547	29.551	29.555	29.559	29.563

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Milli-meters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
750	29.528	29.531	29.535	29.539	29.543	29.547	29.551	29.555	29.559	29.563
751	29.567	29.571	29.575	29.579	29.583	29.587	29.590	29.594	29.598	29.602
752	29.606	29.610	29.614	29.618	29.622	29.626	29.630	29.634	29.638	29.642
753	29.646	29.650	29.653	29.657	29.661	29.665	29.669	29.673	29.677	29.681
754	29.685	29.689	29.693	29.697	29.701	29.705	29.709	29.713	29.716	29.720
755	29.724	29.728	29.732	29.736	29.740	29.744	29.748	29.752	29.756	29.760
756	29.764	29.768	29.772	29.776	29.779	29.783	29.787	29.791	29.795	29.799
757	29.803	29.807	29.811	29.815	29.819	29.823	29.827	29.831	29.835	29.839
758	29.842	29.846	29.850	29.854	29.858	29.862	29.866	29.870	29.874	29.878
759	29.882	29.886	29.890	29.894	29.898	29.902	29.905	29.909	29.913	29.917
760	29.921	29.925	29.929	29.933	29.937	29.941	29.945	29.949	29.953	29.957
761	29.961	29.965	29.968	29.972	29.976	29.980	29.984	29.988	29.992	29.996
762	30.000	30.004	30.008	30.012	30.016	30.020	30.024	30.027	30.031	30.035
763	30.039	30.043	30.047	30.051	30.055	30.059	30.063	30.067	30.071	30.075
764	30.079	30.083	30.087	30.090	30.094	30.098	30.102	30.106	30.110	30.114
765	30.118	30.122	30.126	30.130	30.134	30.138	30.142	30.146	30.150	30.153
766	30.157	30.161	30.165	30.169	30.173	30.177	30.181	30.185	30.189	30.193
767	30.197	30.201	30.205	30.209	30.213	30.216	30.220	30.224	30.228	30.232
768	30.236	30.240	30.244	30.248	30.252	30.256	30.260	30.264	30.268	30.272
769	30.276	30.279	30.283	30.287	30.291	30.295	30.299	30.303	30.307	30.311
770	30.315	30.319	30.323	30.327	30.331	30.335	30.339	30.342	30.346	30.350
771	30.354	30.358	30.362	30.366	30.370	30.374	30.378	30.382	30.386	30.390
772	30.394	30.398	30.402	30.405	30.409	30.413	30.417	30.421	30.425	30.429
773	30.433	30.437	30.441	30.445	30.449	30.453	30.457	30.461	30.465	30.468
774	30.472	30.476	30.480	30.484	30.488	30.492	30.496	30.500	30.504	30.508
775	30.512	30.516	30.520	30.524	30.528	30.531	30.535	30.539	30.543	30.547
776	30.551	30.555	30.559	30.563	30.567	30.571	30.575	30.579	30.583	30.587
777	30.590	30.594	30.598	30.602	30.606	30.610	30.614	30.618	30.622	30.626
778	30.630	30.634	30.638	30.642	30.646	30.650	30.653	30.657	30.661	30.665
779	30.669	30.673	30.677	30.681	30.685	30.689	30.693	30.697	30.701	30.705
780	30.709	30.713	30.716	30.720	30.724	30.728	30.732	30.736	30.740	30.744
781	30.748	30.752	30.756	30.760	30.764	30.768	30.772	30.776	30.779	30.783
782	30.787	30.791	30.795	30.799	30.803	30.807	30.811	30.815	30.819	30.823
783	30.827	30.831	30.835	30.839	30.842	30.846	30.850	30.854	30.858	30.862
784	30.866	30.870	30.874	30.878	30.882	30.886	30.890	30.894	30.898	30.902
785	30.905	30.909	30.913	30.917	30.921	30.925	30.929	30.933	30.937	30.941
786	30.945	30.949	30.953	30.957	30.961	30.965	30.968	30.972	30.976	30.980
787	30.984	30.988	30.992	30.996	31.000	31.004	31.008	31.012	31.016	31.020
788	31.024	31.027	31.031	31.035	31.039	31.043	31.047	31.051	31.055	31.059
789	31.063	31.067	31.071	31.075	31.079	31.083	31.087	31.090	31.094	31.098
790	31.102	31.106	31.110	31.114	31.118	31.122	31.126	31.130	31.134	31.138
791	31.142	31.146	31.150	31.153	31.157	31.161	31.165	31.169	31.173	31.177
792	31.181	31.185	31.189	31.193	31.197	31.201	31.205	31.209	31.213	31.216
793	31.220	31.224	31.228	31.232	31.236	31.240	31.244	31.248	31.252	31.256
794	31.260	31.264	31.268	31.272	31.276	31.279	31.283	31.287	31.291	31.295
795	31.299	31.303	31.307	31.311	31.315	31.319	31.323	31.327	31.331	31.335
796	31.339	31.342	31.346	31.350	31.354	31.358	31.362	31.366	31.370	31.374
797	31.378	31.382	31.386	31.390	31.394	31.398	31.402	31.405	31.409	31.413
798	31.417	31.421	31.425	31.429	31.433	31.437	31.441	31.445	31.449	31.453
799	31.457	31.461	31.465	31.468	31.472	31.476	31.480	31.484	31.488	31.492
800	31.496	31.500	31.504	31.508	31.512	31.516	31.520	31.524	31.527	31.531

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Millimeters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
800	31.496	31.500	31.504	31.508	31.512	31.516	31.520	31.524	31.527	31.531
801	31.535	31.539	31.543	31.547	31.551	31.555	31.559	31.563	31.567	31.571
802	31.575	31.579	31.583	31.587	31.590	31.594	31.598	31.602	31.606	31.610
803	31.614	31.618	31.622	31.626	31.630	31.634	31.638	31.642	31.646	31.650
804	31.653	31.657	31.661	31.665	31.669	31.673	31.677	31.681	31.685	31.689
805	31.693	31.697	31.701	31.705	31.709	31.713	31.716	31.720	31.724	31.728
806	31.732	31.736	31.740	31.744	31.748	31.752	31.756	31.760	31.764	31.768
807	31.772	31.776	31.779	31.783	31.787	31.791	31.795	31.799	31.803	31.807
808	31.811	31.815	31.819	31.823	31.827	31.831	31.835	31.839	31.842	31.846
809	31.850	31.854	31.858	31.862	31.866	31.870	31.874	31.878	31.882	31.886
810	31.890	31.894	31.898	31.902	31.905	31.909	31.913	31.917	31.921	31.925
811	31.929	31.933	31.937	31.941	31.945	31.949	31.953	31.957	31.961	31.965
812	31.968	31.972	31.976	31.980	31.984	31.988	31.992	31.996	32.000	32.004
813	32.008	32.012	32.016	32.020	32.024	32.027	32.031	32.035	32.039	32.043
814	32.047	32.051	32.055	32.059	32.063	32.067	32.071	32.075	32.079	32.083
815	32.087	32.090	32.094	32.098	32.102	32.106	32.110	32.114	32.118	32.122
816	32.126	32.130	32.134	32.138	32.142	32.146	32.150	32.153	32.157	32.161
817	32.165	32.169	32.173	32.177	32.181	32.185	32.189	32.193	32.197	32.201
818	32.205	32.209	32.213	32.216	32.220	32.224	32.228	32.232	32.236	32.240
819	32.244	32.248	32.252	32.256	32.260	32.264	32.268	32.272	32.276	32.279
820	32.283	32.287	32.291	32.295	32.299	32.303	32.307	32.311	32.315	32.319
821	32.323	32.327	32.331	32.335	32.339	32.342	32.346	32.350	32.354	32.358
822	32.362	32.366	32.370	32.374	32.378	32.382	32.386	32.390	32.394	32.398
823	32.402	32.405	32.409	32.413	32.417	32.421	32.425	32.429	32.433	32.437
824	32.441	32.445	32.449	32.453	32.457	32.461	32.465	32.468	32.472	32.476
825	32.480	32.484	32.488	32.492	32.496	32.500	32.504	32.508	32.512	32.516
826	32.520	32.524	32.527	32.531	32.535	32.539	32.543	32.547	32.551	32.555
827	32.559	32.563	32.567	32.571	32.575	32.579	32.583	32.587	32.590	32.594
828	32.598	32.602	32.606	32.610	32.614	32.618	32.622	32.626	32.630	32.634
829	32.638	32.642	32.646	32.650	32.653	32.657	32.661	32.665	32.669	32.673
830	32.677	32.681	32.685	32.689	32.693	32.697	32.701	32.705	32.709	32.713
831	32.716	32.720	32.724	32.728	32.732	32.736	32.740	32.744	32.748	32.752
832	32.756	32.760	32.764	32.768	32.772	32.776	32.779	32.783	32.787	32.791
833	32.795	32.799	32.803	32.807	32.811	32.815	32.819	32.823	32.827	32.831
834	32.835	32.839	32.842	32.846	32.850	32.854	32.858	32.862	32.866	32.870
835	32.874	32.878	32.882	32.886	32.890	32.894	32.898	32.902	32.905	32.909
836	32.913	32.917	32.921	32.925	32.929	32.933	32.937	32.941	32.945	32.949
837	32.953	32.957	32.961	32.965	32.968	32.972	32.976	32.980	32.984	32.988
838	32.992	32.996	33.000	33.004	33.008	33.012	33.016	33.020	33.024	33.027
839	33.031	33.035	33.039	33.043	33.047	33.051	33.055	33.059	33.063	33.067
840	33.071	33.075	33.079	33.083	33.087	33.090	33.094	33.098	33.102	33.106
841	33.110	33.114	33.118	33.122	33.126	33.130	33.134	33.138	33.142	33.146
842	33.150	33.153	33.157	33.161	33.165	33.169	33.173	33.177	33.181	33.185
843	33.189	33.193	33.197	33.201	33.205	33.209	33.213	33.216	33.220	33.224
844	33.228	33.232	33.236	33.240	33.244	33.248	33.252	33.256	33.260	33.264
845	33.268	33.272	33.276	33.279	33.283	33.287	33.291	33.295	33.299	33.303
846	33.307	33.311	33.315	33.319	33.323	33.327	33.331	33.335	33.339	33.342
847	33.346	33.350	33.354	33.358	33.362	33.366	33.370	33.374	33.378	33.382
848	33.386	33.390	33.394	33.398	33.402	33.405	33.409	33.413	33.417	33.421
849	33.425	33.429	33.433	33.437	33.441	33.445	33.449	33.453	33.457	33.461
850	33.464	33.468	33.472	33.476	33.480	33.484	33.488	33.492	33.496	33.500

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Millimeters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
850	33.464	33.468	33.472	33.476	33.480	33.484	33.488	33.492	33.496	33.500
851	33.504	33.508	33.512	33.516	33.520	33.524	33.527	33.531	33.535	33.539
852	33.543	33.547	33.551	33.555	33.559	33.563	33.567	33.571	33.575	33.579
853	33.583	33.587	33.590	33.594	33.598	33.602	33.606	33.610	33.614	33.618
854	33.622	33.626	33.630	33.634	33.638	33.642	33.646	33.650	33.653	33.657
855	33.661	33.665	33.669	33.673	33.677	33.681	33.685	33.689	33.693	33.697
856	33.701	33.705	33.709	33.713	33.716	33.720	33.724	33.728	33.732	33.736
857	33.740	33.744	33.748	33.752	33.756	33.760	33.764	33.768	33.772	33.776
858	33.779	33.783	33.787	33.791	33.795	33.799	33.803	33.807	33.811	33.815
859	33.819	33.823	33.827	33.831	33.835	33.839	33.842	33.846	33.850	33.854
860	33.858	33.862	33.866	33.870	33.874	33.878	33.882	33.886	33.890	33.894
861	33.898	33.902	33.905	33.909	33.913	33.917	33.921	33.925	33.929	33.933
862	33.937	33.941	33.945	33.949	33.953	33.957	33.961	33.964	33.968	33.972
863	33.976	33.980	33.984	33.988	33.992	33.996	34.000	34.004	34.008	34.012
864	34.016	34.020	34.024	34.027	34.031	34.035	34.039	34.043	34.047	34.051
865	34.055	34.059	34.063	34.067	34.071	34.075	34.079	34.083	34.087	34.090
866	34.094	34.098	34.102	34.106	34.110	34.114	34.118	34.122	34.126	34.130
867	34.134	34.138	34.142	34.146	34.150	34.153	34.157	34.161	34.165	34.169
868	34.173	34.177	34.181	34.185	34.189	34.193	34.197	34.201	34.205	34.209
869	34.213	34.216	34.220	34.224	34.228	34.232	34.236	34.240	34.244	34.248
870	34.252	34.256	34.260	34.264	34.268	34.272	34.276	34.279	34.283	34.287
871	34.291	34.295	34.299	34.303	34.307	34.311	34.315	34.319	34.323	34.327
872	34.331	34.335	34.339	34.342	34.346	34.350	34.354	34.358	34.362	34.366
873	34.370	34.374	34.378	34.382	34.386	34.390	34.394	34.398	34.402	34.405
874	34.409	34.413	34.417	34.421	34.425	34.429	34.433	34.437	34.441	34.445
875	34.449	34.453	34.457	34.461	34.464	24.468	34.472	34.476	34.480	34.484
876	34.488	34.492	34.496	34.500	34.504	34.508	34.512	34.516	34.520	34.524
877	34.527	34.531	34.535	34.539	34.543	34.547	34.551	34.555	34.559	34.563
878	34.567	34.571	34.575	34.579	34.583	34.587	34.590	34.594	34.598	34.602
879	34.606	34.610	34.614	34.618	34.622	34.626	34.630	34.634	34.638	34.642
880	34.646	34.650	34.653	34.657	34.661	34.665	34.669	34.673	34.677	34.681
881	34.685	34.689	34.693	34.697	34.701	34.705	34.709	34.713	34.716	34.720
882	34.724	34.728	34.732	34.736	34.740	34.744	34.748	34.752	34.756	34.760
883	34.764	34.768	34.772	34.776	34.779	34.783	34.787	34.791	34.795	34.799
884	34.803	34.807	34.811	34.815	34.819	34.823	34.827	34.831	34.835	34.839
885	34.842	34.846	34.850	34.854	34.858	34.862	34.866	34.870	34.874	34.878
886	34.882	34.886	34.890	34.894	34.898	34.902	34.905	34.909	34.913	34.917
887	34.921	34.925	34.929	34.933	34.937	34.941	34.945	34.949	34.953	34.957
888	34.961	34.964	34.968	34.972	34.976	34.980	34.984	34.988	34.992	34.996
889	35.000	35.004	35.008	35.012	35.016	35.020	35.024	35.027	35.031	35.035
890	35.039	35.043	35.047	35.051	35.055	35.059	35.063	35.067	35.071	35.075
891	35.079	35.083	35.087	35.090	35.094	35.098	35.102	35.106	35.110	35.114
892	35.118	35.122	35.126	35.130	35.134	35.138	35.142	35.146	35.150	35.153
893	35.157	35.161	35.165	35.169	35.173	35.177	35.181	35.185	35.189	35.193
894	35.197	35.201	35.205	35.209	35.213	35.216	35.220	35.224	35.228	35.232
895	35.236	35 240	35.244	35.248	35.252	35.256	35.260	35.264	35.268	35.272
896	35.276	35.279	35.283	35.287	35.291	35.295	35.299	35.303	35.307	35.311
897	35.315	35.319	35.323	35.327	35.331	35.335	35.339	35.342	35.346	35.350
898	35.354	35.358	35.362	35.366	35.370	35.374	35.378	35.382	35.386	35.390
899	35.394	35.398	35.402	35.405	35.409	35.413	35.417	35.421	35.425	35.429
900	35.433	35.437	35.441	35.445	35.449	35.453	35.457	35.461	35.464	35.468

TABLE 10.

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Milli-meters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
900	35.433	35.437	35.441	35.445	35.449	35.453	35.457	35.461	35.464	35.468
901	35.472	35.476	35.480	35.484	35.488	35.492	35.496	35.500	35.504	35.508
902	35.512	35.516	35.520	35.524	35.527	35.531	35.535	35.539	35.543	35.547
903	35.551	35.555	35.559	35.563	35.567	35.571	35.575	35.579	35.583	35.587
904	35.590	35.594	35.598	35.602	35.606	35.610	35.614	35.618	35.622	35.626
905	35.630	35.634	35.638	35.642	35.646	35.650	35.653	35.657	35.661	35.665
906	35.669	35.673	35.677	35.681	35.685	35.689	35.693	35.697	35.701	35.705
907	35.709	35.713	35.716	35.720	35.724	35.728	35.732	35.736	35.740	35.744
908	35.748	35.752	35.756	35.760	35.764	35.768	35.772	35.776	35.779	35.783
909	35.787	35.791	35.795	35.799	35.803	35.807	35.811	35.815	35.819	35.823
910	35.827	35.831	35.835	35.839	35.842	35.846	35.850	35.854	35.858	35.862
911	35.866	35.870	35.874	35.878	35.882	35.886	35.890	35.894	35.898	35.902
912	35.905	35.909	35.913	35.917	35.921	35.925	35.929	35.933	35.937	35.941
913	35.945	35.949	35.953	35.957	35.961	35.964	35.968	35.972	35.976	35.980
914	35.984	35.988	35.992	35.996	36.000	36.004	36.008	36.012	36.016	36.020
915	36.024	36.027	36.031	36.035	36.039	36.043	36.047	36.051	36.055	36.059
916	36.063	36.067	36.071	36.075	36.079	36.083	36.087	36.090	36.094	36.098
917	36.102	36.106	36.110	36.114	36.118	36.122	36.126	36.130	36.134	36.138
918	36.142	36.146	36.150	36.153	36.157	36.161	36.165	36.169	36.173	36.177
919	36.181	36.185	36.189	36.193	36.197	36.201	36.205	36.209	36.213	36.216
920	36.220	36.224	36.228	36.232	36.236	36.240	36.244	36.248	36.252	36.256
921	36.260	36.264	36.268	36.272	36.276	36.279	36.283	36.287	36.291	36.295
922	36.299	36.303	36.307	36.311	36.315	36.319	36.323	36.327	36.331	36.335
923	36.339	36.342	36.346	36.350	36.354	36.358	36.362	36.366	36.370	36.374
924	36.378	36.382	36.386	36.390	36.394	36.398	36.402	36.405	36.409	36.413
925	36.417	36.421	36.425	36.429	36.433	36.437	36.441	36.445	36.449	36.453
926	36.457	36.461	36.464	36.468	36.472	36.476	36.480	36.484	36.488	36.492
927	36.496	36.500	36.504	36.508	36.512	36.516	36.520	36.524	36.527	36.531
928	36.535	36.539	36.543	36.547	36.551	36.555	36.559	36.563	36.567	36.571
929	36.575	36.579	36.583	36.587	36.590	36.594	36.598	36.602	36.606	36.610
930	36.614	36.618	36.622	36.626	36.630	36.634	36.638	36.642	36.646	36.650
931	36.653	36.657	36.661	36.665	36.669	36.673	36.677	36.681	36.685	36.689
932	36.693	36.697	36.701	36.705	36.709	36.713	36.716	36.720	36.724	36.728
933	36.732	36.736	36.740	36.744	36.748	36.752	36.756	36.760	36.764	36.768
934	36.772	36.776	36.779	36.783	36.787	36.791	36.795	36.799	36.803	36.807
935	36.811	36.815	36.819	36.823	36.827	36.831	36.835	36.839	36.842	36.846
936	36.850	36.854	36.858	36.862	36.866	36.870	36.874	36.878	36.882	36.886
937	36.890	36.894	36.898	36.902	36.905	36.909	36.913	36.917	36.921	36.925
938	36.929	36.933	36.937	36.941	36.945	36.949	36.953	36.957	36.961	36.964
939	36.968	36.972	36.976	36.980	36.984	36.988	36.992	36.996	37.000	37.004
940	37.008	37.012	37.016	37.020	37.024	37.027	37.031	37.035	37.039	37.043
941	37.047	37.051	37.055	37.059	37.063	37.067	37.071	37.075	37.079	37.083
942	37.087	37.090	37.094	37.098	37.102	37.106	37.110	37.114	37.118	37.122
943	37.126	37.130	37.134	37.138	37.142	37.146	37.150	37.153	37.157	37.161
944	37.165	37.169	37.173	37.177	37.181	37.185	37.189	37.193	37.197	37.201
945	37.204	37.208	37.212	37.216	37.220	37.224	37.228	37.232	37.236	37.240
946	37.244	37.248	37.252	37.256	37.260	37.264	37.268	37.272	37.276	37.279
947	37.283	37.287	37.291	37.295	37.299	37.303	37.307	37.311	37.315	37.319
948	37.323	37.327	37.331	37.335	37.339	37.342	37.346	37.350	37.354	37.358
949	37.362	37.366	37.370	37.374	37.378	37.382	37.386	37.390	37.394	37.398
950	37.402	37.405	37.409	37.413	37.417	37.421	37.425	37.429	37.433	37.437

MILLIMETERS INTO INCHES.

1 mm. = 0.03937 inch.

Millimeters.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
950	37.402	37.405	37.409	37.413	37.417	37.421	37.425	37.429	37.433	37.437
951	37.441	37.445	37.449	37.453	37.457	37.461	37.464	37.468	37.472	37.476
952	37.480	37.484	37.488	37.492	37.496	37.500	37.504	37.508	37.512	37.516
953	37.520	37.524	37.527	37.531	37.535	37.539	37.543	37.547	37.551	37.555
954	37.559	37.563	37.567	37.571	37.575	37.579	37.583	37.587	37.590	37.594
955	37.598	37.602	37.606	37.610	37.614	37.618	37.622	37.626	37.630	37.634
956	37.638	37.642	37.646	37.650	37.653	37.657	37.661	37.665	37.669	37.673
957	37.677	37.681	37.685	37.689	37.693	37.697	37.701	37.705	37.709	37.713
958	37.716	37.720	37.724	37.728	37.732	37.736	37.740	37.744	37.748	37.752
959	37.756	37.760	37.764	37.768	37.772	37.776	37.779	37.783	37.787	37.791
960	37.795	37.799	37.803	37.807	37.811	37.815	37.819	37.823	37.827	37.831
961	37.835	37.839	37.842	37.846	37.850	37.854	37.858	37.862	37.866	37.870
962	37.874	37.878	37.882	37.886	37.890	37.894	37.898	37.901	37.905	37.909
963	37.913	37.917	37.921	37.925	37.929	37.933	37.937	37.941	37.945	37.949
964	37.953	37.957	37.961	37.964	37.968	37.972	37.976	37.980	37.984	37.988
965	37.992	37.996	38.000	38.004	38.008	38.012	38.016	38.020	38.024	38.027
966	38.031	38.035	38.039	38.043	38.047	38.051	38.055	38.059	38.063	38.067
967	38.071	38.075	38.079	38.083	38.087	38.090	38.094	38.098	38.102	38.106
968	38.110	38.114	38.118	38.122	38.126	38.130	38.134	38.138	38.142	38.146
969	38.150	38.153	38.157	38.161	38.165	38.169	38.173	38.177	38.181	38.185
970	38.189	38.193	38.197	38.201	38.205	38.209	38.213	38.216	38.220	38.224
971	38.228	38.232	38.236	38.240	38.244	38.248	38.252	38.256	38.260	38.264
972	38.268	38.272	38.276	38.279	38.283	38.287	38.291	38.295	38.299	38.303
973	38.307	38.311	38.315	38.319	38.323	38.327	38.331	38.335	38.339	38.342
974	38.346	38.350	38.354	38.358	38.362	38.366	38.370	38.374	38.378	38.382
975	38.386	38.390	38.394	38.398	38.401	38.405	38.409	38.413	38.417	38.421
976	38.425	38.429	38.433	38.437	38.441	38.445	38.449	38.453	38.457	38.461
977	38.464	38.468	38.472	38.476	38.480	38.484	38.488	38.492	38.496	38.500
978	38.504	38.508	38.512	38.516	38.520	38.524	38.527	38.531	38.535	38.539
979	38.543	38.547	38.551	38.555	38.559	38.563	38.567	38.571	38.575	38.579
980	38.583	38.587	38.590	38.594	38.598	38.602	38.606	38.610	38.614	38.618
981	38.622	38.626	38.630	38.634	38.638	38.642	38.646	38.650	38.653	38.657
982	38.661	38.665	38.669	38.673	38.677	38.681	38.685	38.689	38.693	38.697
983	38.701	38.705	38.709	38.713	38.716	38.720	38.724	38.728	38.732	38.736
984	38.740	38.744	38.748	38.752	38.756	38.760	38.764	38.768	38.772	38.776
985	38.780	38.783	38.787	38.791	38.795	38.799	38.803	38.807	38.811	38.815
986	38.819	38.823	38.827	38.831	38.835	38.839	38.842	38.846	38.850	38.854
987	38.858	38.862	38.866	38.870	38.874	38.878	38.882	38.886	38.890	38.894
988	38.898	38.901	38.905	38.909	38.913	38.917	38.921	38.925	38.929	38.933
989	38.937	38.941	38.945	38.949	38.953	38.957	38.961	38.964	38.968	38.972
990	38.976	38.980	38.984	38.988	38.992	38.996	39.000	39.004	39.008	39.012
991	39.016	39.020	39.024	39.027	39.031	39.035	39.039	39.043	39.047	39.051
992	39.055	39.059	39.063	39.067	39.071	39.075	39.079	39.083	39.087	39.090
993	39.094	39.098	39.102	39.106	39.110	39.114	39.118	39.122	39.126	39.130
994	39.134	39.138	39.142	39.146	39.150	39.153	39.157	39.161	39.165	39.169
995	39.173	39.177	39.181	39.185	39.189	39.193	39.197	39.201	39.205	39.209
996	39.213	39.216	39.220	39.224	39.228	39.232	39.236	39.240	39.244	39.248
997	39.252	39.256	39.260	39.264	39.268	39.272	39.276	39.279	39.283	39.287
998	39.291	39.295	39.299	39.303	39.307	39.311	39.315	39.319	39.323	39.327
999	39.331	39.335	39.339	39.342	39.346	39.350	39.354	39.358	39.362	39.366
1000	39.370	39.374	39.378	39.382	39.386	39.390	39.394	39.398	39.401	39.405

BAROMETRIC INCHES (MERCURY) INTO MILLIBARS.

1 inch = 33.86395 mb.

Inches	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
0.0	0.00	0.34	0.68	1.02	1.35	1.69	2.03	2.37	2.71	3.05
0.1	3.39	3.73	4.06	4.40	4.74	5.08	5.42	5.76	6.10	6.43
0.2	6.77	7.11	7.45	7.79	8.13	8.47	8.80	9.14	9.48	9.82
0.3	10.16	10.50	10.84	11.18	11.51	11.85	12.19	12.53	12.87	13.21
0.4	13.55	13.88	14.22	14.56	14.90	15.24	15.58	15.92	16.25	16.59
0.5	16.93	17.27	17.61	17.95	18.29	18.63	18.96	19.30	19.64	19.98
0.6	20.32	20.66	21.00	21.33	21.67	22.01	22.35	22.69	23.03	23.37
0.7	23.70	24.04	24.38	24.72	25.06	25.40	25.74	26.08	26.41	26.75
0.8	27.09	27.43	27.77	28.11	28.45	28.78	29.12	29.46	29.80	30.14
0.9	30.48	30.82	31.15	31.49	31.83	32.17	32.51	32.85	33.19	33.53
1.0	33.86	34.20	34.54	34.88	35.22	35.56	35.90	36.23	36.57	36.91
1.1	37.25	37.59	37.93	38.27	38.60	38.94	39.28	39.62	39.96	40.30
1.2	40.64	40.98	41.31	41.65	41.99	42.33	42.67	43.01	43.35	43.68
1.3	44.02	44.36	44.70	45.04	45.38	45.72	46.05	46.39	46.73	47.07
1.4	47.41	47.75	48.09	48.43	48.76	49.10	49.44	49.78	50.12	50.46
1.5	50.80	51.13	51.47	51.81	52.15	52.49	52.83	53.17	53.51	53.84
1.6	54.18	54.52	54.86	55.20	55.54	55.88	56.21	56.55	56.89	57.23
1.7	57.57	57.91	58.25	58.58	58.92	59.26	59.60	59.94	60.28	60.62
1.8	60.96	61.29	61.63	61.97	62.31	62.65	62.99	63.33	63.66	64.00
1.9	64.34	64.68	65.02	65.36	65.70	66.03	66.37	66.71	67.05	67.39
2.0	67.73	68.07	68.41	68.74	69.08	69.42	69.76	70.10	70.44	70.78
2.1	71.11	71.45	71.79	72.13	72.47	72.81	73.15	73.48	73.82	74.16
2.2	74.50	74.84	75.18	75.52	75.86	76.19	76.53	76.87	77.21	77.55
2.3	77.89	78.23	78.56	78.90	79.24	79.58	79.92	80.26	80.60	80.93
2.4	81.27	81.61	81.95	82.29	82.63	82.97	83.31	83.64	83.98	84.32
25.0	846.6	846.9	847.3	847.6	848.0	848.3	848.6	849.0	849.3	849.6
25.1	850.0	850.3	850.7	851.0	851.3	851.7	852.0	852.4	852.7	853.0
25.2	853.4	853.7	854.0	854.4	854.7	855.1	855.4	855.7	856.1	856.4
25.3	856.8	857.1	857.4	857.8	858.1	858.5	858.8	859.1	859.5	859.8
25.4	860.1	860.5	860.8	861.2	861.5	861.8	862.2	862.5	862.9	863.2
25.5	863.5	863.9	864.2	864.5	864.9	865.2	865.6	865.9	866.2	866.6
25.6	866.9	867.3	867.6	867.9	868.3	868.6	868.9	869.3	869.6	870.0
25.7	870.3	870.7	871.0	871.3	871.7	872.0	872.3	872.7	873.0	873.4
25.8	873.7	874.0	874.4	874.7	875.0	875.4	875.7	876.1	876.4	876.7
25.9	877.1	877.4	877.8	878.1	878.4	878.8	879.1	879.4	879.8	880.1
26.0	880.5	880.8	881.1	881.5	881.8	882.2	882.5	882.8	883.2	883.5
26.1	883.8	884.2	884.5	884.9	885.2	885.5	885.9	886.2	886.6	886.9
26.2	887.2	887.6	887.9	888.3	888.6	888.9	889.3	889.6	889.9	890.3
26.3	890.6	891.0	891.3	891.6	892.0	892.3	892.7	893.0	893.3	893.7
26.4	894.0	894.3	894.7	895.0	895.4	895.7	896.0	896.4	896.7	897.1
26.5	897.4	897.7	898.1	898.4	898.7	899.1	899.4	899.8	900.1	900.4
26.6	900.8	901.1	901.5	901.8	902.1	902.5	902.8	903.2	903.5	903.8
26.7	904.2	904.5	904.8	905.2	905.5	905.9	906.2	906.5	906.9	907.2
26.8	907.6	907.9	908.2	908.6	908.9	909.2	909.6	909.9	910.3	910.6
26.9	910.9	911.3	911.6	912.0	912.3	912.6	913.0	913.3	913.6	914.0
27.0	914.3	914.7	915.0	915.3	915.7	916.0	916.4	916.7	917.0	917.4
27.1	917.7	918.1	918.4	918.7	919.1	919.4	919.7	920.1	920.4	920.8
27.2	921.1	921.4	921.8	922.1	922.5	922.8	923.1	923.5	923.8	924.1
27.3	924.5	924.8	925.2	925.5	925.8	926.2	926.5	926.9	927.2	927.5
27.4	927.9	928.2	928.5	928.9	929.2	929.6	929.9	930.2	930.6	930.9

BAROMETRIC INCHES (MERCURY) INTO MILLIBARS.

1 inch = 33.86395 mb.

Inches.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
27.5	931.3	931.6	931.9	932.3	932.6	933.0	933.3	933.6	934.0	934.3
27.6	934.6	935.0	935.3	935.7	936.0	936.3	936.7	937.0	937.4	937.7
27.7	938.0	938.4	938.7	939.0	939.4	939.7	940.1	940.4	940.7	941.1
27.8	941.4	941.8	942.1	942.4	942.8	943.1	943.4	943.8	944.1	944.5
27.9	944.8	945.1	945.5	945.8	946.2	946.5	946.8	947.2	947.5	947.9
28.0	948.2	948.5	948.9	949.2	949.5	949.9	950.2	950.6	950.9	951.2
28.1	951.6	951.9	952.3	952.6	952.9	953.3	953.6	953.9	954.3	954.6
28.2	955.0	955.3	955.6	956.0	956.3	956.7	957.0	957.3	957.7	958.0
28.3	958.3	958.7	959.0	959.4	959.7	960.0	960.4	960.7	961.1	961.4
28.4	961.7	962.1	962.4	962.8	963.1	963.4	963.8	964.1	964.4	964.8
28.5	965.1	965.5	965.8	966.1	966.5	966.8	967.2	967.5	967.8	968.2
28.6	968.5	968.8	969.2	969.5	969.9	970.2	970.5	970.9	971.2	971.6
28.7	971.9	972.2	972.6	972.9	973.2	973.6	973.9	974.3	974.6	974.9
28.8	975.3	975.6	976.0	976.3	976.6	977.0	977.3	977.7	978.0	978.3
28.9	978.7	979.0	979.3	979.7	980.0	980.4	980.7	981.0	981.4	981.7
29.0	982.1	982.4	982.7	983.1	983.4	983.7	984.1	984.4	984.8	985.1
29.1	985.4	985.8	986.1	986.5	986.8	987.1	987.5	987.8	988.2	988.5
29.2	988.8	989.2	989.5	989.8	990.2	990.5	990.9	991.2	991.5	991.9
29.3	992.2	992.6	992.9	993.2	993.6	993.9	994.2	994.6	994.9	995.3
29.4	995.6	995.9	996.3	996.6	997.0	997.3	997.6	998.0	998.3	998.6
29.5	999.0	999.3	999.7	1000.0	1000.4	1000.7	1001.0	1001.4	1001.7	1002.0
29.6	1002.4	1002.7	1003.1	1003.4	1003.7	1004.1	1004.4	1004.7	1005.1	1005.4
29.7	1005.8	1006.1	1006.4	1006.8	1007.1	1007.5	1007.8	1008.1	1008.5	1008.8
29.8	1009.1	1009.5	1009.8	1010.2	1010.5	1010.8	1011.2	1011.5	1011.9	1012.2
29.9	1012.5	1012.9	1013.2	1013.5	1013.9	1014.2	1014.6	1014.9	1015.2	1015.6
30.0	1015.9	1016.3	1016.6	1016.9	1017.3	1017.6	1018.0	1018.3	1018.6	1019.0
30.1	1019.3	1019.6	1020.0	1020.3	1020.7	1021.0	1021.3	1021.7	1022.0	1022.4
30.2	1022.7	1023.0	1023.4	1023.7	1024.0	1024.4	1024.7	1025.1	1025.4	1025.7
30.3	1026.1	1026.4	1026.8	1027.1	1027.4	1027.8	1028.1	1028.4	1028.8	1029.1
30.4	1029.5	1029.8	1030.1	1030.5	1030.8	1031.2	1031.5	1031.8	1032.2	1032.5
30.5	1032.9	1033.2	1033.5	1033.9	1034.2	1034.5	1034.9	1035.2	1035.6	1035.9
30.6	1036.2	1036.6	1036.9	1037.3	1037.6	1037.9	1038.3	1038.6	1038.9	1039.3
30.7	1039.6	1040.0	1040.3	1040.6	1041.0	1041.3	1041.7	1042.0	1042.3	1042.7
30.8	1043.0	1043.3	1043.7	1044.0	1044.4	1044.7	1045.0	1045.4	1045.7	1046.1
30.9	1046.4	1046.7	1047.1	1047.4	1047.8	1048.1	1048.4	1048.8	1049.1	1049.5
31.0	1049.8	1050.1	1050.5	1050.8	1051.1	1051.5	1051.8	1052.2	1052.5	1052.8
31.1	1053.2	1053.5	1053.8	1054.2	1054.5	1054.9	1055.2	1055.5	1055.9	1056.2
31.2	1056.6	1056.9	1057.2	1057.6	1057.9	1058.2	1058.6	1058.9	1059.3	1059.6
31.3	1059.9	1060.3	1060.6	1061.0	1061.3	1061.6	1062.0	1062.3	1062.7	1063.0
31.4	1063.3	1063.7	1064.0	1064.3	1064.7	1065.0	1065.4	1065.7	1066.0	1066.4
31.5	1066.7	1067.1	1067.4	1067.7	1068.1	1068.4	1068.7	1069.1	1069.4	1069.8
31.6	1070.1	1070.4	1070.8	1071.1	1071.5	1071.8	1072.1	1072.5	1072.8	1073.1
31.7	1073.5	1073.8	1074.2	1074.5	1074.8	1075.2	1075.5	1075.9	1076.2	1076.5
31.8	1076.9	1077.2	1077.6	1077.9	1078.2	1078.6	1078.9	1079.2	1079.6	1079.9
31.9	1080.3	1080.6	1080.9	1081.3	1081.6	1082.0	1082.3	1082.6	1083.0	1083.3

BAROMETRIC MILLIMETERS (MERCURY) INTO MILLIBARS.

1 mm. = 1.33322387 mb.

Milli-meters.	0	1	2	3	4	5	6	7	8	9
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
0	0	1.3	2.7	4.0	5.3	6.7	8.0	9.3	10.7	12.0
10	13.3	14.7	16.0	17.3	18.7	20.0	21.3	22.7	24.0	25.3
20	26.7	28.0	29.3	30.7	32.0	33.3	34.7	36.0	37.3	38.7
30	40.0	41.3	42.7	44.0	45.3	46.7	48.0	49.3	50.7	52.0
40	53.3	54.7	56.0	57.3	58.7	60.0	61.3	62.7	64.0	65.3
50	66.7	68.0	69.3	70.7	72.0	73.3	74.7	76.0	77.3	78.7
60	80.0	81.3	82.7	84.0	85.3	86.7	88.0	89.3	90.7	92.0
70	93.3	94.7	96.0	97.3	98.7	100.0	101.3	102.7	104.0	105.3
80	106.7	108.0	109.3	110.7	112.0	113.3	114.7	116.0	117.3	118.7
90	120.0	121.3	122.7	124.0	125.3	126.7	128.0	129.3	130.7	132.0
100	133.3	134.7	136.0	137.3	138.7	140.0	141.3	142.7	144.0	145.3
110	146.7	148.0	149.3	150.7	152.0	153.3	154.7	156.0	157.3	158.7
120	160.0	161.3	162.7	164.0	165.3	166.7	168.0	169.3	170.7	172.0
130	173.3	174.7	176.0	177.3	178.7	180.0	181.3	182.7	184.0	185.3
140	186.7	188.0	189.3	190.7	192.0	193.3	194.7	196.0	197.3	198.7
150	200.0	201.3	202.7	204.0	205.3	206.6	208.0	209.3	210.6	212.0
160	213.3	214.6	216.0	217.3	218.6	220.0	221.3	222.6	224.0	225.3
170	226.6	228.0	229.3	230.6	232.0	233.3	234.6	236.0	237.3	238.6
180	240.0	241.3	242.6	244.0	245.3	246.6	248.0	249.3	250.6	252.0
190	253.3	254.6	256.0	257.3	258.6	260.0	261.3	262.6	264.0	265.3
200	266.6	268.0	269.3	270.6	272.0	273.3	274.6	276.0	277.3	278.6
210	280.0	281.3	282.6	284.0	285.3	286.6	288.0	289.3	290.6	292.0
220	293.3	294.6	296.0	297.3	298.6	300.0	301.3	302.6	304.0	305.3
230	306.6	308.0	309.3	310.6	312.0	313.3	314.6	316.0	317.3	318.6
240	320.0	321.3	322.6	324.0	325.3	326.6	328.0	329.3	330.6	332.0
250	333.3	334.6	336.0	337.3	338.6	340.0	341.3	342.6	344.0	345.3
260	346.6	348.0	349.3	350.6	352.0	353.3	354.6	356.0	357.3	358.6
270	360.0	361.3	362.6	364.0	365.3	366.6	368.0	369.3	370.6	372.0
280	373.3	374.6	376.0	377.3	378.6	380.0	381.3	382.6	384.0	385.3
290	386.6	388.0	389.3	390.6	392.0	393.3	394.6	396.0	397.3	398.6
300	400.0	401.3	402.6	404.0	405.3	406.6	408.9	409.3	410.6	412.0
310	413.3	414.6	416.0	417.3	418.6	420.0	421.3	422.6	424.0	425.3
320	426.6	428.0	429.3	430.6	432.0	433.3	434.6	436.0	437.3	438.6
330	440.0	441.3	442.6	444.0	445.3	446.6	448.0	449.3	450.6	452.0
340	453.3	454.6	456.0	457.3	458.6	460.0	461.3	462.6	464.0	465.3
350	466.6	468.0	469.3	470.6	472.0	473.3	474.6	476.0	477.3	478.6
360	480.0	481.3	482.6	484.0	485.3	486.6	488.0	489.3	490.6	492.0
370	493.3	494.6	496.0	497.3	498.6	500.0	501.3	502.6	504.0	505.3
380	506.6	508.0	509.3	510.6	512.0	513.3	514.6	516.0	517.3	518.6
390	520.0	521.3	522.6	524.0	525.3	526.6	528.0	529.3	530.6	532.0
400	533.3	534.6	536.0	537.3	538.6	540.0	541.3	542.6	544.0	545.3
410	546.6	548.0	549.3	550.6	552.0	553.3	554.6	556.0	557.3	558.6
420	560.0	561.3	562.6	564.0	565.3	566.6	568.0	569.3	570.6	572.0
430	573.3	574.6	576.0	577.3	578.6	580.0	581.3	582.6	584.0	585.3
440	586.6	588.0	589.3	590.6	592.0	593.3	594.6	596.0	597.3	598.6

BAROMETRIC MILLIMETERS (MERCURY) INTO MILLIBARS.

1 mm. = 1.33322387 mb.

Millimeters.	0	1	2	3	4	5	6	7	8	9
	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
450	600.0	601.3	602.6	604.0	605.3	606.6	608.0	609.3	610.6	611.9
460	613.3	614.6	615.9	617.3	618.6	619.9	621.3	622.6	623.9	625.3
470	626.6	627.9	629.3	630.6	631.9	633.3	634.6	635.9	637.3	638.6
480	639.9	641.3	642.6	643.9	645.3	646.6	647.9	649.3	650.6	651.9
490	653.3	654.6	655.9	657.3	658.6	659.9	661.3	662.6	663.9	665.3
500	666.6	667.9	669.3	670.6	671.9	673.3	674.6	675.9	677.3	678.6
510	679.9	681.3	682.6	683.9	685.3	686.6	687.9	689.3	690.6	691.9
520	693.3	694.6	695.9	697.3	698.6	699.9	701.3	702.6	703.9	705.3
530	706.6	707.9	709.3	710.6	711.9	713.3	714.6	715.9	717.3	718.6
540	719.9	721.3	722.6	723.9	725.3	726.6	727.9	729.3	730.6	731.9
550	733.3	734.6	735.9	737.3	738.6	739.9	741.3	742.6	743.9	745.3
560	746.6	747.9	749.3	750.6	751.9	753.3	754.6	755.9	757.3	758.6
570	759.9	761.3	762.6	763.9	765.3	766.6	767.9	769.3	770.6	771.9
580	773.3	774.6	775.9	777.3	778.6	779.9	781.3	782.6	783.9	785.3
590	786.6	787.9	789.3	790.6	791.9	793.3	794.6	795.9	797.3	798.6
600	799.9	801.3	802.6	803.9	805.3	806.6	807.9	809.3	810.6	811.9
610	813.3	814.6	815.9	817.3	818.6	819.9	821.3	822.6	823.9	825.3
620	826.6	827.9	829.3	830.6	831.9	833.3	834.6	835.9	837.3	838.6
630	839.9	841.3	842.6	843.9	845.3	846.6	847.9	849.3	850.6	851.9
640	853.3	854.6	855.9	857.3	858.6	859.9	861.3	862.6	863.9	865.3
650	866.6	867.9	869.3	870.6	871.9	873.3	874.6	875.9	877.3	878.6
660	879.9	881.3	882.6	883.9	885.3	886.6	887.9	889.3	890.6	891.9
670	893.3	894.6	895.9	897.3	898.6	899.9	901.3	902.6	903.9	905.3
680	906.6	907.9	909.3	910.6	911.9	913.3	914.6	915.9	917.3	918.6
690	919.9	921.3	922.6	923.9	925.3	926.6	927.9	929.3	930.6	931.9
700	933.3	934.6	935.9	937.3	938.6	939.9	941.3	942.6	943.9	945.3
710	946.6	947.9	949.3	950.6	951.9	953.3	954.6	955.9	957.3	958.6
720	959.9	961.3	962.6	963.9	965.3	966.6	967.9	969.3	970.6	971.9
730	973.3	974.6	975.9	977.3	978.6	979.9	981.3	982.6	983.9	985.3
740	986.6	987.9	989.3	990.6	991.9	993.3	994.6	995.9	997.3	998.6
750	999.9	1001.3	1002.6	1003.9	1005.3	1006.6	1007.9	1009.3	1010.6	1011.9
760	1013.3	1014.6	1015.9	1017.2	1018.6	1019.9	1021.2	1022.6	1023.9	1025.2
770	1026.6	1027.9	1029.2	1030.6	1031.9	1033.2	1034.6	1035.9	1037.2	1038.6
780	1039.9	1041.2	1042.6	1043.9	1045.2	1046.6	1047.9	1049.2	1050.6	1051.9
790	1053.2	1054.6	1055.9	1057.2	1058.6	1059.9	1061.2	1062.6	1063.9	1065.2

FEET INTO METERS.

1 foot = 0.3048006 meter.

Feet.	0	1	2	3	4	5	6	7	8	9
	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.
0	0.000	0.305	0.610	0.914	1.219	1.524	1.829	2.134	2.438	2.743
10	3.048	3.353	3.658	3.962	4.267	4.572	4.877	5.182	5.486	5.791
20	6.096	6.401	6.706	7.010	7.315	7.620	7.925	8.230	8.534	8.839
30	9.144	9.449	9.754	10.058	10.363	10.668	10.973	11.278	11.582	11.887
40	12.192	12.497	12.802	13.106	13.411	13.716	14.021	14.326	14.630	14.935
50	15.240	15.545	15.850	16.154	16.459	16.764	17.069	17.374	17.678	17.983
60	18.288	18.593	18.898	19.202	19.507	19.812	20.117	20.422	20.726	21.031
70	21.336	21.641	21.946	22.250	22.555	22.860	23.165	23.470	23.774	24.079
80	24.384	24.689	24.994	25.298	25.603	25.908	26.213	26.518	26.822	27.127
90	27.432	27.737	28.042	28.346	28.651	28.956	29.261	29.566	29.870	30.175

Feet.	0	10	20	30	40	50	60	70	80	90
100	30.48	33.53	36.58	39.62	42.67	45.72	48.77	51.82	54.86	57.91
200	60.96	64.01	67.06	70.10	73.15	76.20	79.25	82.30	85.34	88.39
300	91.44	94.49	97.54	100.58	103.63	106.68	109.73	112.78	115.82	118.87
400	121.92	124.97	128.02	131.06	134.11	137.16	140.21	143.26	146.30	149.35
500	152.40	155.45	158.50	161.54	164.59	167.64	170.69	173.74	176.78	179.83
600	182.88	185.93	188.98	192.02	195.07	198.12	201.17	204.22	207.26	210.31
700	213.36	216.41	219.46	222.50	225.55	228.60	231.65	234.70	237.74	240.79
800	243.84	246.89	249.94	252.98	256.03	259.08	262.13	265.18	268.22	271.27
900	274.32	277.37	280.42	283.46	286.51	289.56	292.61	295.66	298.70	301.75
1000	304.80	307.85	310.90	313.94	316.99	320.04	323.09	326.14	329.18	332.23
1100	335.28	338.33	341.38	344.42	347.47	350.52	353.57	356.62	359.67	362.71
1200	365.76	368.81	371.86	374.90	377.95	381.00	384.05	387.10	390.14	393.19
1300	396.24	399.29	402.34	405.38	408.43	411.48	414.53	417.58	420.62	423.67
1400	426.72	429.77	432.82	435.86	438.91	441.96	445.01	448.06	451.10	454.15
1500	457.20	460.25	463.30	466.34	469.39	472.44	475.49	478.54	481.58	484.63
1600	487.68	490.73	493.78	496.82	499.87	502.92	505.97	509.02	512.07	515.11
1700	518.16	521.21	524.26	527.31	530.35	533.40	536.45	539.50	542.55	545.59
1800	548.64	551.69	554.74	557.79	560.83	563.88	566.93	569.98	573.03	576.07
1900	579.12	582.17	585.22	588.27	591.31	594.36	597.41	600.46	603.51	606.55
2000	609.60	612.65	615.70	618.75	621.79	624.84	627.89	630.94	633.99	637.03
2100	640.08	643.13	646.18	649.23	652.27	655.32	658.37	661.42	664.47	667.51
2200	670.56	673.61	676.66	679.71	682.75	685.80	688.85	691.90	694.95	697.99
2300	701.04	704.09	707.14	710.19	713.23	716.28	719.33	722.38	725.43	728.47
2400	731.52	734.57	737.62	740.67	743.71	746.76	749.81	752.86	755.91	758.95
2500	762.00	765.05	768.10	771.15	774.19	777.24	780.29	783.34	786.39	789.43
2600	792.48	795.53	798.58	801.63	804.67	807.72	810.77	813.82	816.87	819.91
2700	822.96	826.01	829.06	832.11	835.15	838.20	841.25	844.30	847.35	850.39
2800	853.44	856.49	859.54	862.59	865.63	868.68	871.73	874.78	877.83	880.87
2900	883.92	886.97	890.02	893.07	896.11	899.16	902.21	905.26	908.31	911.35
3000	914.40	917.45	920.50	923.55	926.59	929.64	932.69	935.74	938.79	941.83
3100	944.88	947.93	950.98	954.03	957.07	960.12	963.17	966.22	969.27	972.31
3200	975.36	978.41	981.46	984.51	987.55	990.60	993.65	996.70	999.75	1002.79
3300	1005.84	1008.89	1011.94	1014.99	1018.03	1021.08	1024.13	1027.18	1030.23	1033.27
3400	1036.32	1039.37	1042.42	1045.47	1048.51	1051.56	1054.61	1057.66	1060.71	1063.75
3500	1066.80	1069.85	1072.90	1075.95	1078.99	1082.04	1085.09	1088.14	1091.19	1094.23
3600	1097.28	1100.33	1103.38	1106.43	1109.47	1112.52	1115.57	1118.62	1121.67	1124.71
3700	1127.76	1130.81	1133.86	1136.91	1139.95	1143.00	1146.05	1149.10	1152.15	1155.19
3800	1158.24	1161.29	1164.34	1167.39	1170.43	1173.48	1176.53	1179.58	1182.63	1185.67
3900	1188.72	1191.77	1194.82	1197.87	1200.91	1203.96	1207.01	1210.06	1213.11	1216.15
4000	1219.20	1222.25	1225.30	1228.35	1231.39	1234.44	1237.49	1240.54	1243.59	1246.63

FEET INTO METERS.

1 foot = 0.3048006 meter.

Feet.	0	10	20	30	40	50	60	70	80	90
	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.
4000	1219.2	1222.3	1225.3	1228.3	1231.4	1234.4	1237.5	1240.5	1243.6	1246.6
4100	1249.7	1252.7	1255.8	1258.8	1261.9	1264.9	1268.0	1271.0	1274.1	1277.1
4200	1280.2	1283.2	1286.3	1289.3	1292.4	1295.4	1298.5	1301.5	1304.5	1307.6
4300	1310.6	1313.7	1316.7	1319.8	1322.8	1325.9	1328.9	1332.0	1335.0	1338.1
4400	1341.1	1344.2	1347.2	1350.3	1353.3	1356.4	1359.4	1362.5	1365.5	1368.6
4500	1371.6	1374.7	1377.7	1380.7	1383.8	1386.8	1389.9	1392.9	1396.0	1399.0
4600	1402.1	1405.1	1408.2	1411.2	1414.3	1417.3	1420.4	1423.4	1426.5	1429.5
4700	1432.6	1435.6	1438.7	1441.7	1444.8	1447.8	1450.9	1453.9	1456.9	1460.0
4800	1463.0	1466.1	1469.1	1472.2	1475.2	1478.3	1481.3	1484.4	1487.4	1490.5
4900	1493.5	1496.6	1499.6	1502.7	1505.7	1508.8	1511.8	1514.9	1517.9	1521.0
5000	1524.0	1527.1	1530.1	1533.1	1536.2	1539.2	1542.3	1545.3	1548.4	1551.4
5100	1554.5	1557.5	1560.6	1563.6	1566.7	1569.7	1572.8	1575.8	1578.9	1581.9
5200	1585.0	1588.0	1591.1	1594.1	1597.2	1600.2	1603.3	1606.3	1609.3	1612.4
5300	1615.4	1618.5	1621.5	1624.6	1627.6	1630.7	1633.7	1636.8	1639.8	1642.9
5400	1645.9	1649.0	1652.0	1655.1	1658.1	1661.2	1664.2	1667.3	1670.3	1673.4
5500	1676.4	1679.5	1682.5	1685.5	1688.6	1691.6	1694.7	1697.7	1700.8	1703.8
5600	1706.9	1709.9	1713.0	1716.0	1719.1	1722.1	1725.2	1728.2	1731.3	1734.3
5700	1737.4	1740.4	1743.5	1746.5	1749.6	1752.6	1755.7	1758.7	1761.7	1764.8
5800	1767.8	1770.9	1773.9	1777.0	1780.0	1783.1	1786.1	1789.2	1792.2	1795.3
5900	1798.3	1801.4	1804.4	1807.5	1810.5	1813.6	1816.6	1819.7	1822.7	1825.8
6000	1828.8	1831.9	1834.9	1837.9	1841.0	1844.0	1847.1	1850.1	1853.2	1856.2
6100	1859.3	1862.3	1865.4	1868.4	1871.5	1874.5	1877.6	1880.6	1883.7	1886.7
6200	1889.8	1892.8	1895.9	1898.9	1902.0	1905.0	1908.1	1911.1	1914.1	1917.2
6300	1920.2	1923.3	1926.3	1929.4	1932.4	1935.5	1938.5	1941.6	1944.6	1947.7
6400	1950.7	1953.8	1956.8	1959.9	1962.9	1966.0	1969.0	1972.1	1975.1	1978.2
6500	1981.2	1984.3	1987.3	1990.3	1993.4	1996.4	1999.5	2002.5	2005.6	2008.6
6600	2011.7	2014.7	2017.8	2020.8	2023.9	2026.9	2030.0	2033.0	2036.1	2039.1
6700	2042.2	2045.2	2048.3	2051.3	2054.4	2057.4	2060.5	2063.5	2066.5	2069.6
6800	2072.6	2075.7	2078.7	2081.8	2084.8	2087.9	2090.9	2094.0	2097.0	2100.1
6900	2103.1	2106.2	2109.2	2112.3	2115.3	2118.4	2121.4	2124.5	2127.5	2130.6
7000	2133.6	2136.7	2139.7	2142.7	2145.8	2148.8	2151.9	2154.9	2158.0	2161.0
7100	2164.1	2167.1	2170.2	2173.2	2176.3	2179.3	2182.4	2185.4	2188.5	2191.5
7200	2194.6	2197.6	2200.7	2203.7	2206.8	2209.8	2212.9	2215.9	2218.9	2222.0
7300	2225.0	2228.1	2231.1	2234.2	2237.2	2240.3	2243.3	2246.4	2249.4	2252.5
7400	2255.5	2258.6	2261.6	2264.7	2267.7	2270.8	2273.8	2276.9	2279.9	2283.0
7500	2286.0	2289.1	2292.1	2295.1	2298.2	2301.2	2304.3	2307.3	2310.4	2313.4
7600	2316.5	2319.5	2322.6	2325.6	2328.7	2331.7	2334.8	2337.8	2340.9	2343.9
7700	2347.0	2350.0	2353.1	2356.1	2359.2	2362.2	2365.3	2368.3	2371.3	2374.4
7800	2377.4	2380.5	2383.5	2386.6	2389.6	2392.7	2395.7	2398.8	2401.8	2404.9
7900	2407.9	2411.0	2414.0	2417.1	2420.1	2423.2	2426.2	2429.3	2432.3	2435.4
8000	2438.4	2441.5	2444.5	2447.5	2450.6	2453.6	2456.7	2459.7	2462.8	2465.8
8100	2468.9	2471.9	2475.0	2478.0	2481.1	2484.1	2487.2	2490.2	2493.3	2496.3
8200	2499.4	2502.4	2505.5	2508.5	2511.6	2514.6	2517.7	2520.7	2523.7	2526.8
8300	2529.8	2532.9	2535.9	2539.0	2542.0	2545.1	2548.1	2551.2	2554.2	2557.3
8400	2560.3	2563.4	2566.4	2569.5	2572.5	2575.6	2578.6	2581.7	2584.7	2587.8
8500	2590.8	2593.9	2596.9	2599.9	2603.0	2606.0	2609.1	2612.1	2615.2	2618.2
8600	2621.3	2624.3	2627.4	2630.4	2633.5	2636.5	2639.6	2642.6	2645.7	2648.7
8700	2651.8	2654.8	2657.9	2660.9	2664.0	2667.0	2670.1	2673.1	2676.1	2679.2
8800	2682.2	2685.3	2688.3	2691.4	2694.4	2697.5	2700.5	2703.6	2706.6	2709.7
8900	2712.7	2715.8	2718.8	2721.9	2724.9	2728.0	2731.0	2734.1	2737.1	2740.2
9000	2743.2	2746.3	2749.3	2752.3	2755.4	2758.4	2761.5	2764.5	2767.6	2770.6

METERS INTO FEET.

1 meter = 39.3700 inches = 3.280833 feet.

Meters.	0	1	2	3	4	5	6	7	8	9
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
0	0.00	3.28	6.56	9.84	13.12	16.40	19.68	22.97	26.25	29.53
10	32.81	36.09	39.37	42.65	45.93	49.21	52.49	55.77	59.05	62.34
20	65.62	68.90	72.18	75.46	78.74	82.02	85.30	88.58	91.86	95.14
30	98.42	101.71	104.99	108.27	111.55	114.83	118.11	121.39	124.67	127.95
40	131.23	134.51	137.79	141.08	144.36	147.64	150.92	154.20	157.48	160.76
50	164.04	167.32	170.60	173.88	177.16	180.45	183.73	187.01	190.29	193.57
60	196.85	200.13	203.41	206.69	209.97	213.25	216.53	219.82	223.10	226.38
70	229.66	232.94	236.22	239.50	242.78	246.06	249.34	252.62	255.90	259.19
80	262.47	265.75	269.03	272.31	275.59	278.87	282.15	285.43	288.71	291.99
90	295.27	298.56	301.84	305.12	308.40	311.68	314.96	318.24	321.52	324.80
100	328.08	331.36	334.64	337.93	341.21	344.49	347.77	351.05	354.33	357.61
110	360.89	364.17	367.45	370.73	374.01	377.30	380.58	383.86	387.14	390.42
120	393.70	396.98	400.26	403.54	406.82	410.10	413.38	416.67	419.95	423.23
130	426.51	429.79	433.07	436.35	439.63	442.91	446.19	449.47	452.75	456.04
140	459.32	462.60	465.88	469.16	472.44	475.72	479.00	482.28	485.56	488.84
150	492.12	495.41	498.69	501.97	505.25	508.53	511.81	515.09	518.37	521.65
160	524.93	528.21	531.49	534.78	538.06	541.34	544.62	547.90	551.18	554.46
170	557.74	561.02	564.30	567.58	570.86	574.15	577.43	580.71	583.99	587.27
180	590.55	593.83	597.11	600.39	603.67	606.95	610.23	613.52	616.80	620.08
190	623.36	626.64	629.92	633.20	636.48	639.76	643.04	646.32	649.60	652.89
200	656.17	659.45	662.73	666.01	669.29	672.57	675.85	679.13	682.41	685.69
210	688.97	692.26	695.54	698.82	702.10	705.38	708.66	711.94	715.22	718.50
220	721.78	725.06	728.34	731.63	734.91	738.19	741.47	744.75	748.03	751.31
230	754.59	757.87	761.15	764.43	767.71	771.00	774.28	777.56	780.84	784.12
240	787.40	790.68	793.96	797.24	800.52	803.80	807.08	810.37	813.65	816.93
250	820.21	823.49	826.77	830.05	833.33	836.61	839.89	843.17	846.45	849.74
260	853.02	856.30	859.58	862.86	866.14	869.42	872.70	875.98	879.26	882.54
270	885.82	889.11	892.39	895.67	898.95	902.23	905.51	908.79	912.07	915.35
280	918.63	921.91	925.19	928.48	931.76	935.04	938.32	941.60	944.88	948.16
290	951.44	954.72	958.00	961.28	964.56	967.85	971.13	974.41	977.69	980.97
300	984.25	987.53	990.81	994.09	997.37	1000.65	1003.93	1007.22	1010.50	1013.78
310	1017.06	1020.34	1023.62	1026.90	1030.18	1033.46	1036.74	1040.02	1043.30	1046.59
320	1049.87	1053.15	1056.43	1059.71	1062.99	1066.27	1069.55	1072.83	1076.11	1079.39
330	1082.67	1085.96	1089.24	1092.52	1095.80	1099.08	1102.36	1105.64	1109.92	1112.20
340	1115.48	1118.76	1122.04	1125.33	1128.61	1131.89	1135.17	1138.45	1141.73	1145.01
350	1148.29	1151.57	1154.85	1158.13	1161.41	1164.70	1167.98	1171.26	1174.54	1177.82
360	1181.10	1184.38	1187.66	1190.94	1194.22	1197.50	1200.78	1204.07	1207.35	1210.63
370	1213.91	1217.19	1220.47	1223.75	1227.03	1230.31	1233.59	1236.87	1240.15	1243.44
380	1246.72	1250.00	1253.28	1256.56	1259.84	1263.12	1266.40	1269.68	1272.96	1276.24
390	1279.52	1282.81	1286.09	1289.37	1292.65	1295.93	1299.21	1302.49	1305.77	1309.05
400	1312.33	1315.61	1318.89	1322.18	1325.46	1328.74	1332.02	1335.30	1338.58	1341.86
410	1345.14	1348.42	1351.70	1354.98	1358.26	1361.55	1364.83	1368.11	1371.39	1374.67
420	1377.95	1381.23	1384.51	1387.79	1391.07	1394.35	1397.63	1400.92	1404.20	1407.48
430	1410.76	1414.04	1417.32	1420.60	1423.88	1427.16	1430.44	1433.72	1437.00	1440.29
440	1443.57	1446.85	1450.13	1453.41	1456.69	1459.97	1463.25	1466.53	1469.81	1473.09
450	1476.37	1479.66	1482.94	1486.22	1489.50	1492.78	1496.06	1499.34	1502.62	1505.90
460	1509.18	1512.46	1515.74	1519.03	1522.31	1525.59	1528.87	1532.15	1535.43	1538.71
470	1541.99	1545.27	1548.55	1551.83	1555.11	1558.40	1561.68	1564.96	1568.24	1571.52
480	1574.80	1578.08	1581.36	1584.64	1587.92	1591.20	1594.48	1597.77	1601.05	1604.33
490	1607.61	1610.89	1614.17	1617.45	1620.73	1624.01	1627.29	1630.57	1633.85	1637.14
500	1640.42	1643.70	1646.98	1650.26	1653.54	1656.82	1660.10	1663.38	1666.66	1669.94

METERS INTO FEET.

1 meter = 39.3700 inches = 3.280833 feet.

Meters.	0	10	20	30	40	50	60	70	80	90
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
500	1640.4	1673.2	1706.0	1738.8	1771.6	1804.5	1837.3	1870.1	1902.9	1935.7
600	1968.5	2001.3	2034.1	2066.9	2099.7	2132.5	2165.3	2198.2	2231.0	2263.8
700	2296.6	2329.4	2362.2	2395.0	2427.8	2460.6	2493.4	2526.2	2559.0	2591.9
800	2624.7	2657.5	2690.3	2723.1	2755.9	2788.7	2821.5	2854.3	2887.1	2919.9
900	2952.7	2985.6	3018.4	3051.2	3084.0	3116.8	3149.6	3182.4	3215.2	3248.0
1000	3280.8	3313.6	3346.4	3379.3	3412.1	3444.9	3477.7	3510.5	3543.3	3576.1
1100	3608.9	3641.7	3674.5	3707.3	3740.1	3773.0	3805.8	3838.6	3871.4	3904.2
1200	3937.0	3969.8	4002.6	4035.4	4068.2	4101.0	4133.8	4166.7	4199.5	4232.3
1300	4265.1	4297.9	4330.7	4363.5	4396.3	4429.1	4461.9	4494.7	4527.5	4560.4
1400	4593.2	4626.0	4658.8	4691.6	4724.4	4757.2	4790.0	4822.8	4855.6	4888.4
1500	4921.2	4954.1	4986.9	5019.7	5052.5	5085.3	5118.1	5150.9	5183.7	5216.5
1600	5249.3	5282.1	5314.9	5347.8	5380.6	5413.4	5446.2	5479.0	5511.8	5544.6
1700	5577.4	5610.2	5643.0	5675.8	5708.6	5741.5	5774.3	5807.1	5839.9	5872.7
1800	5905.5	5938.3	5971.1	6003.9	6036.7	6069.5	6102.3	6135.2	6168.0	6200.8
1900	6233.6	6266.4	6299.2	6332.0	6364.8	6397.6	6430.4	6463.2	6496.0	6528.9
2000	6561.7	6594.5	6627.3	6660.1	6692.9	6725.7	6758.5	6791.3	6824.1	6856.9
2100	6889.7	6922.6	6955.4	6988.2	7021.0	7053.8	7086.6	7119.4	7152.2	7185.0
2200	7217.8	7250.6	7283.4	7316.3	7349.1	7381.9	7414.7	7447.5	7480.3	7513.1
2300	7545.9	7578.7	7611.5	7644.3	7677.1	7710.0	7742.8	7775.6	7808.4	7841.2
2400	7874.0	7906.8	7939.6	7972.4	8005.2	8038.0	8070.8	8103.7	8136.5	8169.3
2500	8202.1	8234.9	8267.7	8300.5	8333.3	8366.1	8398.9	8431.7	8464.5	8497.4
2600	8530.2	8563.0	8595.8	8628.6	8661.4	8694.2	8727.0	8759.8	8792.6	8825.4
2700	8858.2	8891.1	8923.9	8956.7	8989.5	9022.3	9055.1	9087.9	9120.7	9153.5
2800	9186.3	9219.1	9251.9	9284.8	9317.6	9350.4	9383.2	9416.0	9448.8	9481.6
2900	9514.4	9547.2	9580.0	9612.8	9645.6	9678.5	9711.3	9744.1	9776.9	9809.7
3000	9842.5	9875.3	9908.1	9940.9	9973.7	10006.5	10039.3	10072.2	10105.0	10137.8
3100	10170.6	10203.4	10236.2	10269.0	10301.8	10334.6	10367.4	10400.2	10433.0	10465.9
3200	10498.7	10531.5	10564.3	10597.1	10629.9	10662.7	10695.5	10728.3	10761.1	10793.9
3300	10826.7	10859.6	10892.4	10925.2	10958.0	10990.8	11023.6	11056.4	11089.2	11122.0
3400	11154.8	11187.6	11220.4	11253.3	11286.1	11318.9	11351.7	11384.5	11417.3	11450.1
3500	11482.9	11515.7	11548.5	11581.3	11614.1	11647.0	11679.8	11712.6	11745.4	11778.2
3600	11811.0	11843.8	11876.6	11909.4	11942.2	11975.0	12007.8	12040.7	12073.5	12106.3
3700	12139.1	12171.9	12204.7	12237.5	12270.3	12303.1	12335.9	12368.7	12401.5	12434.4
3800	12467.2	12500.0	12532.8	12565.6	12598.4	12631.2	12664.0	12696.8	12729.6	12762.4
3900	12795.2	12828.1	12860.9	12893.7	12926.5	12959.3	12992.1	13024.9	13057.7	13090.5
4000	13123.3	13156.1	13188.9	13221.8	13254.6	13287.4	13320.2	13353.0	13385.8	13418.6
4100	13451.4	13484.2	13517.0	13549.8	13582.6	13615.5	13648.3	13681.1	13713.9	13746.7
4200	13779.5	13812.3	13845.1	13877.9	13910.7	13943.5	13976.3	14009.2	14042.0	14074.8
4300	14107.6	14140.4	14173.2	14206.0	14238.8	14271.6	14304.4	14337.2	14370.0	14402.9
4400	14435.7	14468.5	14501.3	14534.1	14566.9	14599.7	14632.5	14665.3	14698.1	14730.9
4500	14763.7	14796.6	14829.4	14862.2	14895.0	14927.8	14960.6	14993.4	15026.2	15059.0
4600	15091.8	15124.6	15157.4	15190.3	15223.1	15255.9	15288.7	15321.5	15354.3	15387.1
4700	15419.9	15452.7	15485.5	15518.3	15551.1	15584.0	15616.8	15649.6	15682.4	15715.2
4800	15748.0	15780.8	15813.6	15846.4	15879.2	15912.0	15944.8	15977.7	16010.5	16043.3
4900	16076.1	16108.9	16141.7	16174.5	16207.3	16240.1	16272.9	16305.7	16338.5	16371.4
5000	16404.2	16437.0	16469.8	16502.6	16535.4	16568.2	16601.0	16633.8	16666.6	16699.4

Tenths of a meter.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Feet.	0.328	0.656	0.984	1.312	1.640	1.968	2.297	2.625	2.953

TABLE 15.

MILES INTO KILOMETERS.

1 mile = 1.609347 kilometers.

Miles.	0	1	2	3	4	5	6	7	8	9
	km.	km.	km.	km.	km.	km.	km.	km.	km.	km.
0	0	2	3	5	6	8	10	11	13	14
10	16	18	19	21	23	24	26	27	29	31
20	32	34	35	37	39	40	42	43	45	47
30	48	50	51	53	55	56	58	60	61	63
40	64	66	68	69	71	72	74	76	77	79
50	80	82	84	85	87	89	90	92	93	95
60	97	98	100	101	103	105	106	108	109	111
70	113	114	116	117	119	121	122	124	126	127
80	129	130	132	134	135	137	138	140	142	143
90	145	146	148	150	151	153	154	156	158	159
100	161	163	164	166	167	169	171	172	174	175
110	177	179	180	182	183	185	187	188	190	192
120	193	195	196	198	200	201	203	204	206	208
130	209	211	212	214	216	217	219	220	222	224
140	225	227	229	230	232	233	235	237	238	240
150	241	243	245	246	248	249	251	253	254	256
160	257	259	261	262	264	266	267	269	270	272
170	274	275	277	278	280	282	283	285	286	288
180	290	291	293	295	296	298	299	301	303	304
190	306	307	309	311	312	314	315	317	319	320
200	322	323	325	327	328	330	332	333	335	336
210	338	340	341	343	344	346	348	349	351	352
220	354	356	357	359	360	362	364	365	367	369
230	370	372	373	375	377	378	380	381	383	385
240	386	388	389	391	393	394	396	398	399	401
250	402	404	406	407	409	410	412	414	415	417
260	418	420	422	423	425	426	428	430	431	433
270	435	436	438	439	441	443	444	446	447	449
280	451	452	454	455	457	459	460	462	463	465
290	467	468	470	472	473	475	476	478	480	481
300	483	484	486	488	489	491	492	494	496	497
310	499	501	502	504	505	507	509	510	512	513
320	515	517	518	520	521	523	525	526	528	529
330	531	533	534	536	538	539	541	542	544	546
340	547	549	550	552	554	555	557	558	560	562
350	563	565	566	568	570	571	573	575	576	578
360	579	581	583	584	586	587	589	591	592	594
370	595	597	599	600	602	604	605	607	608	610
380	612	613	615	616	618	620	621	623	624	626
390	628	629	631	632	634	636	637	639	641	642
400	644	645	647	649	650	652	653	655	657	658
410	660	661	663	665	666	668	669	671	673	674
420	676	678	679	681	682	684	686	687	689	690
430	692	694	695	697	698	700	702	703	705	706
440	708	710	711	713	715	716	718	719	721	723
450	724	726	727	729	731	732	734	735	737	739
460	740	742	744	745	747	748	750	752	753	755
470	756	758	760	761	763	764	766	768	769	771
480	772	774	776	778	779	781	782	784	785	787
490	789	790	792	793	795	797	798	800	801	803
500	805	806	808	809	811	813	814	816	818	819
510	821	822	824	826	827	829	830	832	834	835
520	837	838	840	842	843	845	847	848	850	851
530	853	855	856	858	859	861	863	864	866	867
540	869	871	872	874	875	877	879	880	882	884
550	885	887	888	890	892	893	895	896	898	900

MILES INTO KILOMETERS.

Miles.	0	1	2	3	4	5	6	7	8	9
	km.	km.	km.	km.	km.	km.	km.	km.	km.	km.
550	885	887	888	890	892	893	895	896	898	900
560	901	903	904	906	908	909	911	912	914	916
570	917	919	921	922	924	925	927	929	930	932
580	933	935	937	938	940	941	943	945	946	948
590	950	951	953	954	956	958	959	961	962	964
600	966	967	969	970	972	974	975	977	978	980
610	982	983	985	987	988	990	991	993	995	996
620	998	999	1001	1003	1004	1006	1007	1009	1011	1012
630	1014	1015	1017	1019	1020	1022	1024	1025	1027	1028
640	1030	1032	1033	1035	1036	1038	1040	1041	1043	1044
650	1046	1048	1049	1051	1053	1054	1056	1057	1059	1061
660	1062	1064	1065	1067	1069	1070	1072	1073	1075	1077
670	1078	1080	1081	1083	1085	1086	1088	1090	1091	1093
680	1094	1096	1098	1099	1101	1102	1104	1106	1107	1109
690	1110	1112	1114	1115	1117	1118	1120	1122	1123	1125
700	1127	1128	1130	1131	1133	1135	1136	1138	1139	1141
710	1143	1144	1146	1147	1149	1151	1152	1154	1156	1157
720	1159	1160	1162	1164	1165	1167	1168	1170	1172	1173
730	1175	1176	1178	1180	1181	1183	1184	1186	1188	1189
740	1191	1193	1194	1196	1197	1199	1201	1202	1204	1205
750	1207	1209	1210	1212	1213	1215	1217	1218	1220	1221
760	1223	1225	1226	1228	1230	1231	1233	1234	1236	1238
770	1239	1241	1242	1244	1246	1247	1249	1250	1252	1254
780	1255	1257	1259	1260	1262	1263	1265	1267	1268	1270
790	1271	1273	1275	1276	1278	1279	1281	1283	1284	1286
800	1287	1289	1291	1292	1294	1296	1297	1299	1300	1302
810	1304	1305	1307	1308	1310	1312	1313	1315	1316	1318
820	1320	1321	1323	1324	1326	1328	1329	1331	1333	1334
830	1336	1337	1339	1341	1342	1344	1345	1347	1349	1350
840	1352	1353	1355	1357	1358	1360	1362	1363	1365	1366
850	1368	1370	1371	1373	1374	1376	1378	1379	1381	1382
860	1384	1386	1387	1389	1390	1392	1394	1395	1397	1399
870	1400	1402	1403	1405	1407	1408	1410	1411	1413	1415
880	1416	1418	1419	1421	1423	1424	1426	1427	1429	1431
890	1432	1434	1436	1437	1439	1440	1442	1444	1445	1447
900	1448	1450	1452	1453	1455	1456	1458	1460	1461	1463
910	1464	1466	1468	1469	1471	1473	1474	1476	1477	1479
920	1481	1482	1484	1485	1487	1489	1490	1492	1493	1495
930	1497	1498	1500	1502	1503	1505	1506	1508	1510	1511
940	1513	1514	1516	1518	1519	1521	1522	1524	1526	1527
950	1529	1530	1532	1534	1535	1537	1539	1540	1542	1543
960	1545	1547	1548	1550	1551	1553	1555	1556	1558	1559
970	1561	1563	1564	1566	1567	1569	1571	1572	1574	1576
980	1577	1579	1580	1582	1584	1585	1587	1588	1590	1592
990	1593	1595	1596	1598	1600	1601	1603	1605	1606	1608
1000	1609	1611	1613	1614	1616	1617	1619	1621	1622	1624

Miles.	km.	Miles.	km.	Miles.	km.	Miles.	km.
1000	1609	**6000**	9656	**11000**	17703	**16000**	25750
2000	3219	**7000**	11265	**12000**	19312	**17000**	27359
3000	4828	**8000**	12875	**13000**	20922	**18000**	28968
4000	6437	**9000**	14484	**14000**	22531	**19000**	30578
5000	8047	**10000**	16093	**15000**	24140	**20000**	32187

KILOMETERS INTO MILES.

1 kilometer = 0.621370 mile.

Kilo-meters.	0	1	2	3	4	5	6	7	8	9
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
0	0.0	0.6	1.2	1.9	2.5	3.1	3.7	4.3	5.0	5.6
10	6.2	6.8	7.5	8.1	8.7	9.3	9.9	10.6	11.2	11.8
20	12.4	13.0	13.7	14.3	14.9	15.5	16.2	16.8	17.4	18.0
30	18.6	19.3	19.9	20.5	21.1	21.7	22.4	23.0	23.6	24.2
40	24.9	25.5	26.1	26.7	27.3	28.0	28.6	29.2	29.8	30.4
50	31.1	31.7	32.3	32.9	33.6	34.2	34.8	35.4	36.0	36.7
60	37.3	37.9	38.5	39.1	39.8	40.4	41.0	41.6	42.3	42.9
70	43.5	44.1	44.7	45.4	46.0	46.6	47.2	47.8	48.5	49.1
80	49.7	50.3	51.0	51.6	52.2	52.8	53.4	54.1	54.7	55.3
90	55.9	56.5	57.2	57.8	58.4	59.0	59.7	60.3	60.9	61.5
100	62.1	62.8	63.4	64.0	64.6	65.2	65.9	66.5	67.1	67.7
110	68.4	69.0	69.6	70.2	70.8	71.5	72.1	72.7	73.3	73.9
120	74.6	75.2	75.8	76.4	77.0	77.7	78.3	78.9	79.5	80.2
130	80.8	81.4	82.0	82.6	83.3	83.9	84.5	85.1	85.7	86.4
140	87.0	87.6	88.2	88.9	89.5	90.1	90.7	91.3	92.0	92.6
150	93.2	93.8	94.4	95.1	95.7	96.3	96.9	97.6	98.2	98.8
160	99.4	100.0	100.7	101.3	101.9	102.5	103.1	103.8	104.4	105.0
170	105.6	106.3	106.9	107.5	108.1	108.7	109.4	110.0	110.6	111.2
180	111.8	112.5	113.1	113.7	114.3	115.0	115.6	116.2	116.8	117.4
190	118.1	118.7	119.3	119.9	120.5	121.2	121.8	122.4	123.0	123.7
200	124.3	124.9	125.5	126.1	126.8	127.4	128.0	128.6	129.2	129.9
210	130.5	131.1	131.7	132.4	133.0	133.6	134.2	134.8	135.5	136.1
220	136.7	137.3	137.9	138.6	139.2	139.8	140.4	141.1	141.7	142.3
230	142.9	143.5	144.2	144.8	145.4	146.0	146.6	147.3	147.9	148.5
240	149.1	149.8	150.4	151.0	151.6	152.2	152.9	153.5	154.1	154.7
250	155.3	156.0	156.6	157.2	157.8	158.4	159.1	159.7	160.3	160.9
260	161.6	162.2	162.8	163.4	164.0	164.7	165.3	165.9	166.5	167.1
270	167.8	168.4	169.0	169.6	170.3	170.9	171.5	172.1	172.7	173.4
280	174.0	174.6	175.2	175.8	176.5	177.1	177.7	178.3	179.0	179.6
290	180.2	180.8	181.4	182.1	182.7	183.3	183.9	184.5	185.2	185.8
300	186.4	187.0	187.7	188.3	188.9	189.5	190.1	190.8	191.4	192.0
310	192.6	193.2	193.9	194.5	195.1	195.7	196.4	197.0	197.6	198.2
320	198.8	199.5	200.1	200.7	201.3	201.9	202.6	203.2	203.8	204.4
330	205.1	205.7	206.3	206.9	207.5	208.2	208.8	209.4	210.0	210.6
340	211.3	211.9	212.5	213.1	213.8	214.4	215.0	215.6	216.2	216.9
350	217.5	218.1	218.7	219.3	220.0	220.6	221.2	221.8	222.5	223.1
360	223.7	224.3	224.9	225.6	226.2	226.8	227.4	228.0	228.7	229.3
370	229.9	230.5	231.1	231.8	232.4	233.0	233.6	234.3	234.9	235.5
380	236.1	236.7	237.4	238.0	238.6	239.2	239.8	240.5	241.1	241.7
390	242.3	243.0	243.6	244.2	244.8	245.4	246.1	246.7	247.3	247.9
400	248.5	249.2	249.8	250.4	251.0	251.7	252.3	252.9	253.5	254.1
410	254.8	255.4	256.0	256.6	257.2	257.9	258.5	259.1	259.7	260.4
420	261.0	261.6	262.2	262.8	263.5	264.1	264.7	265.3	265.9	266.6
430	267.2	267.8	268.4	269.1	269.7	270.3	270.9	271.5	272.2	272.8
440	273.4	274.0	274.6	275.3	275.9	276.5	277.1	277.8	278.4	279.0
450	279.6	280.2	280.9	281.5	282.1	282.7	283.3	284.0	284.6	285.2
460	285.8	286.5	287.1	287.7	288.3	288.9	289.6	290.2	290.8	291.4
470	292.0	292.7	293.3	293.9	294.5	295.2	295.8	296.4	297.0	297.6
480	298.3	298.9	299.5	300.1	300.7	301.4	302.0	302.6	303.2	303.8
490	304.5	305.1	305.7	306.3	307.0	307.6	308.2	308.8	309.4	310.1
500	310.7	311.3	311.9	312.5	313.2	313.8	314.4	315.0	315.7	316.3
510	316.9	317.5	318.1	318.8	319.4	320.0	320.6	321.2	321.9	322.5
520	323.1	323.7	324.4	325.0	325.6	326.2	326.8	327.5	328.1	328.7
530	329.3	329.9	330.6	331.2	331.8	332.4	333.1	333.7	334.3	334.9
540	335.5	336.2	336.8	337.4	338.0	338.6	339.3	339.9	340.5	341.1

KILOMETERS INTO MILES.

Kilometers.	0	1	2	3	4	5	6	7	8	9
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
550	341.8	342.4	343.0	343.6	344.2	344.9	345.5	346.1	346.7	347.3
560	348.0	348.6	349.2	349.8	350.5	351.1	351.7	352.3	352.9	353.6
570	354.2	354.8	355.4	356.0	356.7	357.3	357.9	358.5	359.2	359.8
580	360.4	361.0	361.6	362.3	362.9	363.5	364.1	364.7	365.4	366.0
590	366.6	367.2	367.9	368.5	369.1	369.7	370.3	371.0	371.6	372.2
600	372.8	373.4	374.1	374.7	375.3	375.9	376.6	377.2	377.8	378.4
610	379.0	379.7	380.3	380.9	381.5	382.1	382.8	383.4	384.0	384.6
620	385.2	385.9	386.5	387.1	387.7	388.4	389.0	389.6	390.2	390.8
630	391.5	392.1	392.7	393.3	393.9	394.6	395.2	395.8	396.4	397.1
640	397.7	398.3	398.9	399.5	400.2	400.8	401.4	402.0	402.6	403.3
650	403.9	404.5	405.1	405.8	406.4	407.0	407.6	408.2	408.9	409.5
660	410.1	410.7	411.3	412.0	412.6	413.2	413.8	414.5	415.1	415.7
670	416.3	416.9	417.6	418.2	418.8	419.4	420.0	420.7	421.3	421.9
680	422.5	423.2	423.8	424.4	425.0	425.6	426.3	426.9	427.5	428.1
690	428.7	429.4	430.0	430.6	431.2	431.9	432.5	433.1	433.7	434.3
700	435.0	435.6	436.2	436.8	437.4	438.1	438.7	439.3	439.9	440.6
710	441.2	441.8	442.4	443.0	443.7	444.3	444.9	445.5	446.1	446.8
720	447.4	448.0	448.6	449.3	449.9	450.5	451.1	451.7	452.4	453.0
730	453.6	454.2	454.8	455.5	456.1	456.7	457.3	457.9	458.6	459.2
740	459.8	460.4	461.1	461.7	462.3	462.9	463.5	464.2	464.8	465.4
750	466.0	466.6	467.3	467.9	468.5	469.1	469.8	470.4	471.0	471.6
760	472.2	472.9	473.5	474.1	474.7	475.3	476.0	476.6	477.2	477.8
770	478.5	479.1	479.7	480.3	480.9	481.6	482.2	482.8	483.4	484.0
780	484.7	485.3	485.9	486.5	487.2	487.8	488.4	489.0	489.6	490.3
790	490.9	491.5	492.1	492.7	493.4	494.0	494.6	495.2	495.9	496.5
800	497.1	497.7	498.3	499.0	499.6	500.2	500.8	501.4	502.1	502.7
810	503.3	503.9	504.6	505.2	505.8	506.4	507.0	507.7	508.3	508.9
820	509.5	510.1	510.8	511.4	512.0	512.6	513.3	513.9	514.5	515.1
830	515.7	516.4	517.0	517.6	518.2	518.8	519.5	520.1	520.7	521.3
840	522.0	522.6	523.2	523.8	524.4	525.1	525.7	526.3	526.9	527.5
850	528.2	528.8	529.4	530.0	530.6	531.3	531.9	532.5	533.1	533.8
860	534.4	535.0	535.6	536.2	536.9	537.5	538.1	538.7	539.3	540.0
870	540.6	541.2	541.8	542.5	543.1	543.7	544.3	544.9	545.6	546.2
880	546.8	547.4	548.0	548.7	549.3	549.9	550.5	551.2	551.8	552.4
890	553.0	553.6	554.3	554.9	555.5	556.1	556.7	557.4	558.0	558.6
900	559.2	559.9	560.5	561.1	561.7	562.3	563.0	563.6	564.2	564.8
910	565.4	566.1	566.7	567.3	567.9	568.6	569.2	569.8	570.4	571.0
920	571.7	572.3	572.9	573.5	574.1	574.8	575.4	576.0	576.6	577.3
930	577.9	578.5	579.1	579.7	580.4	581.0	581.6	582.2	582.8	583.5
940	584.1	584.7	585.3	586.0	586.6	587.2	587.8	588.4	589.1	589.7
950	590.3	590.9	591.5	592.2	592.8	593.4	594.0	594.7	595.3	595.9
960	596.5	597.1	597.8	598.4	599.0	599.6	600.2	600.9	601.5	602.1
970	602.7	603.4	604.0	604.6	605.2	605.8	606.5	607.1	607.7	608.3
980	608.9	609.6	610.2	610.8	611.4	612.0	612.7	613.3	613.9	614.5
990	615.2	615.8	616.4	617.0	617.6	618.3	618.9	619.5	620.1	620.7
1000	621.4	622.0	622.6	623.2	623.9	624.5	625.1	625.7	626.3	627.0

km.	Miles.	km.	Miles.	km.	Miles.	km.	Miles.
1000	621.4	6000	3728.2	11000	6835.1	16000	9941.9
2000	1242.7	7000	4349.6	12000	7456.4	17000	10563.3
3000	1864.1	8000	4971.0	13000	8077.8	18000	11184.7
4000	2485.5	9000	5592.3	14000	8699.2	19000	11806.0
5000	3106.8	10000	6213.7	15000	9320.5	20000	12427.4

TABLE 17.

INTERCONVERSION OF NAUTICAL AND STATUTE MILES.

1 nautical mile* = 6080.20 feet.

Nautical Miles.	Statute Miles.	Statute Miles.	Nautical Miles.
1	1.1516	1	0.8684
2	2.3031	2	1.7368
3	3.4547	3	2.6052
4	4.6062	4	3.4736
5	5.7578	5	4.3420
6	6.9093	6	5.2104
7	8.0609	7	6.0787
8	9.2124	8	6.9471
9	10.3640	9	7.8155

* As defined by the United States Coast Survey.

TABLE 18.

CONTINENTAL MEASURES OF LENGTH WITH THEIR METRIC AND ENGLISH EQUIVALENTS.

The asterisk (*) indicates that the measure is obsolete or seldom used.

Measure.	Metric Equivalent.	English Equivalent.
El (Netherlands)	1 meter.	3.2808 feet.
Fathom, Swedish = 6 feet	1.7814 "	5.8445 "
Foot, Austrian*	0.31608 "	1.0370 "
old French*	0.32484 "	1.0657 "
Russian	0.30480 "	1 "
Rheinlandisch or Rhenish (Prussia*, Denmark, Norway*).	0.31385 "	1.0297 "
Swedish*	0.2969 "	0.9741 "
Spanish* = ⅓ vara	0.2786 "	0.9140 "
*Klafter, Wiener (Vienna)	1.89648 "	6.2221 "
*Line, old French = $\frac{1}{144}$ foot	0.22558 cm.	0.0888 inch.
Mile, Austrian post* = 24000 feet	7.58594 km.	4.714 statute miles.
German sea	1.852 "	1.1508 " "
Swedish = 36000 feet	10.69 "	6.642 " "
Norwegian = 36000 feet	11.2986 "	7.02 " "
Netherlands (mijl)	1 "	0.6214 " "
Prussian (law of 1868)	7.500 "	4.660 " "
Danish	7.5324 "	4.6804 " "
Palm, Netherlands	0.1 meter.	0.3281 feet.
*Rode, Danish	3.7662 "	12.356 "
*Ruthe, Prussian, Norwegian	3.7662 "	12.356 "
Sagene (Russian)	2.1336 "	7 "
*Toise, old French = 6 feet	1.9490 "	6.3943 "
*Vara, Spanish	0.8359 "	2.7424 "
Mexican	0.8380 "	2.7493 "
Werst, or versta (Russian) = 500 sashjene	1.0668 km.	3.500 "

CONVERSION OF MEASURES OF TIME AND ANGLE.

ARC INTO TIME.

°	h. m.	°	h. m.	°	h. m.	°	h m.	°	h. m.	°	h. m.	′	m. s.	″	s.
0	0 0	60	4 0	120	8 0	180	12 0	240	16 0	300	20 0	0	0 0	0	0.000
1	0 4	61	4 4	121	8 4	181	12 4	241	16 4	301	20 4	1	0 4	1	0.067
2	0 8	62	4 8	122	8 8	182	12 8	242	16 8	302	20 8	2	0 8	2	0.133
3	0 12	63	4 12	123	8 12	183	12 12	243	16 12	303	20 12	3	0 12	3	0.200
4	0 16	64	4 16	124	8 16	184	12 16	244	16 16	304	20 16	4	0 16	4	0.267
5	0 20	65	4 20	125	8 20	185	12 20	245	16 20	305	20 20	5	0 20	5	0.333
6	0 24	66	4 24	126	8 24	186	12 24	246	16 24	306	20 24	6	0 24	6	0.400
7	0 28	67	4 28	127	8 28	187	12 28	247	16 28	307	20 28	7	0 28	7	0.467
8	0 32	68	4 32	128	8 32	188	12 32	248	16 32	308	20 32	8	0 32	8	0.533
9	0 36	69	4 36	129	8 36	189	12 36	249	16 36	309	20 36	9	0 36	9	0.600
10	0 40	70	4 40	130	8 40	190	12 40	250	16 40	310	20 40	10	0 40	10	0.667
11	0 44	71	4 44	131	8 44	191	12 44	251	16 44	311	20 44	11	0 44	11	0.733
12	0 48	72	4 48	132	8 48	192	12 48	252	16 48	312	20 48	12	0 48	12	0.800
13	0 52	73	4 52	133	8 52	193	12 52	253	16 52	313	20 52	13	0 52	13	0.867
14	0 56	74	4 56	134	8 56	194	12 56	254	16 56	314	20 56	14	0 56	14	0.933
15	1 0	75	5 0	135	9 0	195	13 0	255	17 0	315	21 0	15	1 0	15	1.000
16	1 4	76	5 4	136	9 4	196	13 4	256	17 4	316	21 4	16	1 4	16	1.067
17	1 8	77	5 8	137	9 8	197	13 8	257	17 8	317	21 8	17	1 8	17	1.133
18	1 12	78	5 12	138	9 12	198	13 12	258	17 12	318	21 12	18	1 12	18	1.200
19	1 16	79	5 16	139	9 16	199	13 16	259	17 16	319	21 16	19	1 16	19	1.267
20	1 20	80	5 20	140	9 20	200	13 20	260	17 20	320	21 20	20	1 20	20	1.333
21	1 24	81	5 24	141	9 24	201	13 24	261	17 24	321	21 24	21	1 24	21	1.400
22	1 28	82	5 28	142	9 28	202	13 28	262	17 28	322	21 28	22	1 28	22	1.467
23	1 32	83	5 32	143	9 32	203	13 32	263	17 32	323	21 32	23	1 32	23	1.533
24	1 36	84	5 36	144	9 36	204	13 36	264	17 36	324	21 36	24	1 36	24	1.600
25	1 40	85	5 40	145	9 40	205	13 40	265	17 40	325	21 40	25	1 40	25	1.667
26	1 44	86	5 44	146	9 44	206	13 44	266	17 44	326	21 44	26	1 44	26	1.733
27	1 48	87	5 48	147	9 48	207	13 48	267	17 48	327	21 48	27	1 48	27	1.800
28	1 52	88	5 52	148	9 52	208	13 52	268	17 52	328	21 52	28	1 52	28	1.867
29	1 56	89	5 56	149	9 56	209	13 56	269	17 56	329	21 56	29	1 56	29	1.933
30	2 0	90	6 0	150	10 0	210	14 0	270	18 0	330	22 0	30	2 0	30	2.000
31	2 4	91	6 4	151	10 4	211	14 4	271	18 4	331	22 4	31	2 4	31	2.067
32	2 8	92	6 8	152	10 8	212	14 8	272	18 8	332	22 8	32	2 8	32	2.133
33	2 12	93	6 12	153	10 12	213	14 12	273	18 12	333	22 12	33	2 12	33	2.200
34	2 16	94	6 16	154	10 16	214	14 16	274	18 16	334	22 16	34	2 16	34	2.267
35	2 20	95	6 20	155	10 20	215	14 20	275	18 20	335	22 20	35	2 20	35	2.333
36	2 24	96	6 24	156	10 24	216	14 24	276	18 24	336	22 24	36	2 24	36	2.400
37	2 28	97	6 28	157	10 28	217	14 28	277	18 28	337	22 28	37	2 28	37	2.467
38	2 32	98	6 32	158	10 32	218	14 32	278	18 32	338	22 32	38	2 32	38	2.533
39	2 36	99	6 36	159	10 36	219	14 36	279	18 36	339	22 36	39	2 36	39	2.600
40	2 40	100	6 40	160	10 40	220	14 40	280	18 40	340	22 40	40	2 40	40	2.667
41	2 44	101	6 44	161	10 44	221	14 44	281	18 44	341	22 44	41	2 44	41	2.733
42	2 48	102	6 48	162	10 48	222	14 48	282	18 48	342	22 48	42	2 48	42	2.800
43	2 52	103	6 52	163	10 52	223	14 52	283	18 52	343	22 52	43	2 52	43	2.867
44	2 56	104	6 56	164	10 56	224	14 56	284	18 56	344	22 56	44	2 56	44	2.933
45	3 0	105	7 0	165	11 0	225	15 0	285	19 0	345	23 0	45	3 0	45	3.000
46	3 4	106	7 4	166	11 4	226	15 4	286	19 4	346	23 4	46	3 4	46	3.067
47	3 8	107	7 8	167	11 8	227	15 8	287	19 8	347	23 8	47	3 8	47	3.133
48	3 12	108	7 12	168	11 12	228	15 12	288	19 12	348	23 12	48	3 12	48	3.200
49	3 16	109	7 16	169	11 16	229	15 16	289	19 16	349	23 16	49	3 16	49	3.267
50	3 20	110	7 20	170	11 20	230	15 20	290	19 20	350	23 20	50	3 20	50	3.333
51	3 24	111	7 24	171	11 24	231	15 24	291	19 24	351	23 24	51	3 24	51	3.400
52	3 28	112	7 28	172	11 28	232	15 28	292	19 28	352	23 28	52	3 28	52	3.467
53	3 32	113	7 32	173	11 32	233	15 32	293	19 32	353	23 32	53	3 32	53	3.533
54	3 36	114	7 36	174	11 36	234	15 36	294	19 36	354	23 36	54	3 36	54	3.600
55	3 40	115	7 40	175	11 40	235	15 40	295	19 40	355	23 40	55	3 40	55	3.667
56	3 44	116	7 44	176	11 44	236	15 44	296	19 44	356	23 44	56	3 44	56	3.733
57	3 48	117	7 48	177	11 48	237	15 48	297	19 48	357	23 48	57	3 48	57	3.800
58	3 52	118	7 52	178	11 52	238	15 52	298	19 52	358	23 52	58	3 52	58	3.867
59	3 56	119	7 56	179	11 56	239	15 56	299	19 56	359	23 56	59	3 56	59	3.933
60	4 0	120	8 0	180	12 0	240	16 0	300	20 0	360	24 0	60	4 0	60	4.000

TIME INTO ARC.

Hours into Arc.

Time.	Arc.	Time.	Arc.	Time.	Arc.	Time.	Arc.	Time.	Arc.	Time.	Arc.
hrs.	°	hrs.	°	hrs.	°	hrs.	°	hrs.	°	hrs.	°
1	15	5	75	9	135	13	195	17	255	21	315
2	30	6	90	10	150	14	210	18	270	22	330
3	45	7	105	11	165	15	225	19	285	23	345
4	60	8	120	12	180	16	240	20	300	24	360

Minutes of Time into Arc.

m.	° ′	m.	° ′	m.	° ′
1	0 15	21	5 15	41	10 15
2	0 30	22	5 30	42	10 30
3	0 45	23	5 45	43	10 45
4	1 0	24	6 0	44	11 0
5	1 15	25	6 15	45	11 15
6	1 30	26	6 30	46	11 30
7	1 45	27	6 45	47	11 45
8	2 0	28	7 0	48	12 0
9	2 15	29	7 15	49	12 15
10	2 30	30	7 30	50	12 30
11	2 45	31	7 45	51	12 45
12	3 0	32	8 0	52	13 0
13	3 15	33	8 15	53	13 15
14	3 30	34	8 30	54	13 30
15	3 45	35	8 45	55	13 45
16	4 0	36	9 0	56	14 0
17	4 15	37	9 15	57	14 15
18	4 30	38	9 30	58	14 30
19	4 45	39	9 45	59	14 45
20	5 0	40	10 0	60	15 0

Seconds of Time into Arc.

s.	′ ″	s.	′ ″	s.	′ ″
1	0 15	21	5 15	41	10 15
2	0 30	22	5 30	42	10 30
3	0 45	23	5 45	43	10 45
4	1 0	24	6 0	44	11 0
5	1 15	25	6 15	45	11 15
6	1 30	26	6 30	46	11 30
7	1 45	27	6 45	47	11 45
8	2 0	28	7 0	48	12 0
9	2 15	29	7 15	49	12 15
10	2 30	30	7 30	50	12 30
11	2 45	31	7 45	51	12 45
12	3 0	32	8 0	52	13 0
13	3 15	33	8 15	53	13 15
14	3 30	34	8 30	54	13 30
15	3 45	35	8 45	55	13 45
16	4 0	36	9 0	56	14 0
17	4 15	37	9 15	57	14 15
18	4 30	38	9 30	58	14 30
19	4 45	39	9 45	59	14 45
20	5 0	40	10 0	60	15 0

Hundredths of a Second of Time into Arc.

Hundredths of a Second of Time.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
s.	″	″	″	″	″	″	″	″	″	″
0.00	0.00	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35
.10	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85
.20	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35
.30	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85
.40	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35
0.50	7.50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85
.60	9.00	9.15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35
.70	10.50	10.65	10.80	10.95	11.10	11.25	11.40	11.55	11.70	11.85
.80	12.00	12.15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35
.90	13.50	13.65	13.80	13.95	14.10	14.25	14.40	14.55	14.70	14.85

DAYS INTO DECIMALS OF A YEAR AND ANGLE.

Day of Year.	Decimal of a Year.	Angle.	Day of Month. Common Year.	Day of Month. Bissextile Year.	Day of Year.	Decimal of a Year.	Angle.	Day of Month. Common Year.	Day of Month. Bissextile Year.
1	0.00000	0° 0′	*Jan.* 1	*Jan.* 1	51	0.13689	49° 17′	*Feb.* 20	*Feb.* 20
2	.00274	0 59	2	2	52	.13963	50 16	21	21
3	.00548	1 58	3	3	53	.14237	51 15	22	22
4	.00821	2 57	4	4	54	.14511	52 14	23	23
5	0.01095	3 57	5	5	55	0.14784	53 13	24	24
6	.01369	4 56	6	6	56	.15058	54 13	25	25
7	.01643	5 55	7	7	57	.15332	55 12	26	26
8	.01916	6 54	8	8	58	.15606	56 11	27	27
9	.02190	7 53	9	9	59	.15880	57 10	28	28
10	0.02464	8 52	10	10	60	0.16153	58 9	*Mar.* 1	29
11	.02738	9 51	11	11	61	.16427	59 8	2	*Mar.* 1
12	.03011	10 51	12	12	62	.16701	60 7	3	2
13	.03285	11 50	13	13	63	.16975	61 7	4	3
14	.03559	12 49	14	14	64	.17248	62 6	5	4
15	0.03833	13 48	15	15	65	0.17522	63 5	6	5
16	.04107	14 47	16	16	66	.17796	64 4	7	6
17	.04381	15 46	17	17	67	.18070	65 3	8	7
18	.04654	16 45	18	18	68	.18344	66 2	9	8
19	.04928	17 44	19	19	69	.18617	67 1	10	9
20	0.05202	18 44	20	20	70	0.18891	68 0	11	10
21	.05476	19 43	21	21	71	.19165	69 0	12	11
22	.05749	20 42	22	22	72	.19439	69 59	13	12
23	.06023	21 41	23	23	73	.19713	70 58	14	13
24	.06297	22 40	24	24	74	.19986	71 57	15	14
25	0.06571	23 39	25	25	75	0.20260	72 56	16	15
26	.06845	24 38	26	26	76	.20534	73 55	17	16
27	.07118	25 38	27	27	77	.20808	74 54	18	17
28	.07392	26 37	28	28	78	.21081	75 54	19	18
29	.07666	27 36	29	29	79	.21355	76 53	20	19
30	0.07940	28 35	30	30	80	0.21629	77 52	21	20
31	.08214	29 34	31	31	81	.21903	78 51	22	21
32	.08487	30 33	*Feb.* 1	*Feb.* 1	82	.22177	79 50	23	22
33	.08761	31 32	2	2	83	.22450	80 49	24	23
34	.09035	32 32	3	3	84	.22724	81 48	25	24
35	0.09309	33 31	4	4	85	0.22998	82 48	26	25
36	.09582	34 30	5	5	86	.23272	83 47	27	26
37	.09856	35 29	6	6	87	.23546	84 46	28	27
38	.10130	36 28	7	7	88	.23819	85 45	29	28
39	.10404	37 27	8	8	89	.24093	86 44	30	29
40	0.10678	38 26	9	9	90	0.24367	87 43	31	30
41	.10951	39 26	10	10	91	.24641	88 42	*Apr.* 1	31
42	.11225	40 25	11	11	92	.24914	89 42	2	*Apr.* 1
43	.11499	41 24	12	12	93	.25188	90 41	3	2
44	.11773	42 23	13	13	94	.25462	91 40	4	3
45	0.12047	43 22	14	14	95	0.25736	92 39	5	4
46	.12320	44 21	15	15	96	.26010	93 38	6	5
47	.12594	45 20	16	16	97	.26283	94 37	7	6
48	.12868	46 19	17	17	98	.26557	95 36	8	7
49	.13142	47 19	18	18	99	.26831	96 35	9	8
50	0.13415	48 18	19	19	100	0.27105	97 35	10	9

DAYS INTO DECIMALS OF A YEAR AND ANGLE.

Day of Year.	Decimal of a Year.	Angle.	Day of Month. Common Year.	Day of Month. Bissextile Year.	Day of Year.	Decimal of a Year.	Angle.	Day of Month. Common Year.	Day of Month. Bissextile Year.
101	0.27379	98° 34′	*Apr.* 11	*Apr.* 10	**151**	0.41068	147° 51′	*May* 31	*May* 30
102	.27652	99 33	12	11	152	.41342	148 50	*June* 1	31
103	.27926	100 32	13	12	153	.41615	149 49	2	*June* 1
104	.28200	101 31	14	13	154	.41889	150 48	3	2
105	0.28474	102 30	15	14	**155**	0.42163	151 47	4	3
106	.28747	103 29	16	15	156	.42437	152 46	5	4
107	.29021	104 29	17	16	157	.42710	153 45	6	5
108	.29295	105 28	18	17	158	.42984	154 45	7	6
109	.29569	106 27	19	18	159	.43258	155 44	8	7
110	0.29843	107 26	20	19	**160**	0.43532	156 43	9	8
111	.30116	108 25	21	20	161	.43806	157 42	10	9
112	.30390	109 24	22	21	162	.44079	158 41	11	10
113	.30664	110 23	23	22	163	.44353	159 40	12	11
114	.30938	111 23	24	23	164	.44627	160 39	13	12
115	0.31211	112 22	25	24	**165**	0.44901	161 39	14	13
116	.31485	113 21	26	25	166	.45175	162 38	15	14
117	.31759	114 20	27	26	167	.45448	163 37	16	15
118	.32033	115 19	28	27	168	.45722	164 36	17	16
119	.32307	116 18	29	28	169	.45996	165 35	18	17
120	0.32580	117 17	30	29	**170**	0.46270	166 34	19	18
121	.32854	118 17	*May* 1	30	171	.46543	167 33	20	19
122	.33128	119 16	2	*May* 1	172	.46817	168 33	21	20
123	.33402	120 15	3	2	173	.47091	169 32	22	21
124	.33676	121 14	4	3	174	.47365	170 31	23	22
125	0.33949	122 13	5	4	**175**	0.47639	171 30	24	23
126	.34223	123 12	6	5	176	.47912	172 29	25	24
127	.34497	124 11	7	6	177	.48186	173 28	26	25
128	34771	125 10	8	7	178	.48460	174 27	27	26
129	.35044	126 10	9	8	179	.48734	175 26	28	27
130	0.35318	127 9	10	9	**180**	0.49008	176 26	29	28
131	.35592	128 8	11	10	181	.49281	177 25	30	29
132	.35866	129 7	12	11	182	.49555	178 24	*July* 1	30
133	.36140	130 6	13	12	183	.49829	179 23	2	*July* 1
134	.36413	131 5	14	13	184	.50103	180 22	3	2
135	0.36687	132 4	15	14	**185**	0.50376	181 21	4	3
136	.36961	133 4	16	15	186	.50650	182 20	5	4
137	.37235	134 3	17	16	187	.50924	183 20	6	5
138	.37509	135 2	18	17	188	.51198	184 19	7	6
139	.37782	136 1	19	18	189	.51472	185 18	8	7
140	0.38056	137 0	20	19	**190**	0.51745	186 17	9	8
141	.38330	137 59	21	20	191	.52019	187 16	10	9
142	.38604	138 58	22	21	192	.52293	188 15	11	10
143	.38877	139 58	23	22	193	.52567	189 14	12	11
144	.39151	140 57	24	23	194	.52841	190 14	13	12
145	0.39425	141 56	25	24	**195**	0.53114	191 13	14	13
146	.39699	142 55	26	25	196	.53388	192 12	15	14
147	.39973	143 54	27	26	197	.53662	193 11	16	15
148	.40246	144 53	28	27	198	.53936	194 10	17	16
149	.40520	145 52	29	28	199	.54209	195 9	18	17
150	0.40794	146 51	30	29	**200**	0.54483	196 8	19	18

DAYS INTO DECIMALS OF A YEAR AND ANGLE.

Day of Year.	Decimal of a Year.	Angle.	Day of Month. Common Year.	Day of Month. Bissextile Year.	Day of Year.	Decimal of a Year.	Angle.	Day of Month. Common Year.	Day of Month. Bissextile Year.
201	0.54757	197° 8′	*July* 20	*July* 19	**251**	0.68446	246° 24′	*Sept.* 8	*Sept.* 7
202	.55031	198 7	21	20	252	.68720	247 24	9	8
203	.55305	199 6	22	21	253	.68994	248 23	10	9
204	.55578	200 5	23	22	254	.69268	249 22	11	10
205	0.55852	201 4	24	23	**255**	0.69541	250 21	12	11
206	.56126	202 3	25	24	256	.69815	251 20	13	12
207	.56400	203 2	26	25	257	.70089	252 19	14	13
208	.56674	204 1	27	26	258	.70363	253 18	15	14
209	.56947	205 1	28	27	259	.70637	254 17	16	15
210	0.57221	206 0	29	28	**260**	0.70910	255 17	17	16
211	.57495	206 59	30	29	261	.71184	256 16	18	17
212	.57769	207 58	31	30	262	.71458	257 15	19	18
213	.58042	208 57	*Aug.* 1	31	263	.71732	258 14	20	19
214	.58316	209 56	2	*Aug.* 1	264	.72005	259 13	21	20
215	0.58590	210 55	3	2	**265**	0.72279	260 12	22	21
216	.58864	211 55	4	3	266	.72553	261 11	23	22
217	.59138	212 54	5	4	267	.72827	262 11	24	23
218	.59411	213 53	6	5	268	.73101	263 10	25	24
219	.59685	214 52	7	6	269	.73374	264 9	26	25
220	0.59959	215 51	8	7	**270**	0.73648	265 8	27	26
221	.60233	216 50	9	8	271	.73922	266 7	28	27
222	.60507	217 49	10	9	272	.74196	267 6	29	28
223	.60780	218 49	11	10	273	.74470	268 5	30	29
224	.61054	219 48	12	11	274	.74743	269 5	*Oct.* 1	30
225	0.61328	220 47	13	12	**275**	0.75017	270 4	2	*Oct.* 1
226	.61602	221 46	14	13	276	.75291	271 3	3	2
227	.61875	222 45	15	14	277	.75565	272 2	4	3
228	.62149	223 44	16	15	278	.75838	273 1	5	4
229	.62423	224 43	17	16	279	.76112	274 0	6	5
230	0.62697	225 43	18	17	**280**	0.76386	274 59	7	6
231	.62971	226 42	19	18	281	.76660	275 59	8	7
232	.63244	227 41	20	19	282	.76934	276 58	9	8
233	.63518	228 40	21	20	283	.77207	277 57	10	9
234	.63792	229 39	22	21	284	.77481	278 56	11	10
235	0.64066	230 38	23	22	**285**	0.77755	279 55	12	11
236	.64339	231 37	24	23	286	.78029	280 54	13	12
237	.64613	232 36	25	24	287	.78303	281 53	14	13
238	.64887	233 36	26	25	288	.78576	282 52	15	14
239	.65161	234 35	27	26	289	.78850	283 52	16	15
240	0.65435	235 34	28	27	**290**	0.79124	284 51	17	16
241	.65708	236 33	29	28	291	.79398	285 50	18	17
242	.65982	237 32	30	29	292	.79671	286 49	19	18
243	.66256	238 31	31	30	293	.79945	287 48	20	19
244	.66530	239 30	*Sept.* 1	31	294	.80219	288 47	21	20
245	0.66804	240 30	2	*Sept.* 1	**295**	0.80493	289 46	22	21
246	.67077	241 29	3	2	296	.80767	290 46	23	22
247	.67351	242 28	4	3	297	.81040	291 45	24	23
248	.67625	243 27	5	4	298	.81314	292 44	25	24
249	.67899	244 26	6	5	299	.81588	293 43	26	25
250	0.68172	245 25	7	6	**300**	0.81862	294 42	27	26

DAYS INTO DECIMALS OF A YEAR AND ANGLE.

Day of Year.	Decimal of a Year.	Angle.	Day of Month. Common Year	Day of Month. Bissextile Year.
301	0.82136	295° 41′	*Oct.* 28	*Oct.* 27
302	.82409	296 40	29	28
303	.82683	297 40	30	29
304	.82957	298 39	31	30
305	0.83231	299 38	*Nov.* 1	31
306	.83504	300 37	2	*Nov.* 1
307	.83778	301 36	3	2
308	.84052	302 35	4	3
309	.84326	303 34	5	4
310	0.84600	304 34	6	5
311	.84873	305 33	7	6
312	.85147	306 32	8	7
313	.85421	307 31	9	8
314	.85695	308 30	10	9
315	0.85969	309 29	11	10
316	.86242	310 28	12	11
317	.86516	311 27	13	12
318	.86790	312 27	14	13
319	.87064	313 26	15	14
320	0.87337	314 25	16	15
321	.87611	315 24	17	16
322	.87885	316 23	18	17
323	.88159	317 22	19	18
324	.88433	318 21	20	19
325	0.88706	319 21	21	20
326	.88980	320 20	22	21
327	.89254	321 19	23	22
328	.89528	322 18	24	23
329	.89802	323 17	25	24
330	0.90075	324 16	26	25
331	.90349	325 15	27	26
332	.90623	326 15	28	27
333	.90897	327 14	29	28
334	.91170	328 13	30	29
335	0.91444	329 12	*Dec.* 1	30
336	.91718	330 11	2	*Dec.* 1
337	.91992	331 10	3	2
338	.92266	332 9	4	3
339	.92539	333 9	5	4
340	0.92813	334 8	6	5
341	.93087	335 7	7	6
342	.93361	336 6	8	7
343	.93634	337 5	9	8
344	.93908	338 4	10	9
345	0.94182	339 3	11	10
346	.94456	340 2	12	11
347	.94730	341 2	13	12
348	.95003	342 1	14	13
349	.95277	343 0	15	14
350	0.95551	343 59	16	15

Day of Year.	Decimal of a Year.	Angle.	Day of Month. Common Year.	Day of Month. Bissextile Year.
351	0.95825	344° 58′	*Dec.* 17	*Dec.* 16
352	.96099	345 57	18	17
353	.96372	346 56	19	18
354	.96646	347 56	20	19
355	0.96920	348 55	21	20
356	.97194	349 54	22	21
357	.97467	350 53	23	22
358	.97741	351 52	24	23
359	.98015	352 51	25	24
360	0.98289	353 50	26	25
361	.98563	354 50	27	26
362	.98836	355 49	28	27
363	.99110	356 48	29	28
364	.99384	357 47	30	29
365	0.99658	358 46	31	30
366	.99932	359 45		31

Conversion for Hours.

Hrs.	Dec. of Year.	Angle.
1	0.00011	2.5′
2	23	4.9
3	34	7.4
4	46	9.9
5	0.00057	12.3
6	68	14.8
7	80	17.2
8	91	19.7
9	103	22.2
10	0.00114	24.6
11	126	27.1
12	137	29.6
13	148	32.0
14	160	34.5
15	0.00171	37.0
16	183	39.4
17	194	41.9
18	205	44.4
19	217	46.8
20	0.00228	49.3
21	240	51.7
22	251	54.2
23	262	56.7
24	274	59.1

Conversion for Minutes.

Min.	Dec. of Year.	Angle.
1	0.00000	0.04′
2	0	.08
3	1	.12
4	1	.16
5	0.00001	0.21
6	1	.25
7	1	.29
8	2	.33
9	2	.37
10	0.00002	0.41
20	4	.82
30	6	1.23
40	8	1.64
50	10	2.05
60	0.00011	2.46

Table 22.

HOURS, MINUTES AND SECONDS INTO DECIMALS OF A DAY.

Hours.	Day.	Min.	Day.	Min.	Day.	Sec.	Day.	Sec.	Day.
1	0.041 667	1	0.000 694	31	0.021 528	1	0.000 012	31	0.000 359
2	.083 333	2	.001 389	32	.022 222	2	.000 023	32	.000 370
3	.125 000	3	.002 083	33	.022 917	3	.000 035	33	.000 382
4	.166 667	4	.002 778	34	.023 611	4	.000 046	34	.000 394
5	0.208 333	5	0.003 472	35	0.024 305	5	0.000 058	35	0.000 405
6	.250 000	6	.004 167	36	.025 000	6	.000 069	36	.000 417
7	.291 667	7	.004 861	37	.025 694	7	.000 081	37	.000 428
8	.333 333	8	.005 556	38	.026 389	8	.000 093	38	.000 440
9	.375 000	9	.006 250	39	.027 083	9	.000 104	39	.000 451
10	0.416 667	10	0.006 944	40	0.027 778	10	0.000 116	40	0.000 463
11	.458 333	11	.007 639	41	.028 472	11	.000 127	41	.000 475
12	.500 000	12	.008 333	42	.029 167	12	.000 139	42	.000 486
13	.541 667	13	.009 028	43	.029 861	13	.000 150	43	.000 498
14	.583 333	14	.009 722	44	.030 556	14	.000 162	44	.000 509
15	0.625 000	15	0.010 417	45	0.031 250	15	0.000 174	45	0.000 521
16	.666 667	16	.011 111	46	.031 944	16	.000 185	46	.000 532
17	.708 333	17	.011 806	47	.032 639	17	.000 197	47	.000 544
18	.750 000	18	.012 500	48	.033 333	18	.000 208	48	.000 556
19	.791 667	19	.013 194	49	.034 028	19	.000 220	49	.000 567
20	0.833 333	20	0.013 889	50	0.034 722	20	0.000 231	50	0.000 579
21	.875 000	21	.014 583	51	.035 417	21	.000 243	51	.000 590
22	.916 667	22	.015 278	52	.036 111	22	.000 255	52	.000 602
23	.958 333	23	.015 972	53	.036 806	23	.000 266	53	.000 613
24	1.000 000	24	.016 667	54	.037 500	24	.000 278	54	.000 625
		25	0.017 361	55	0.038 194	25	0.000 289	55	0.000 637
		26	.018 056	56	.038 889	26	.000 301	56	.000 648
		27	.018 750	57	.039 583	27	.000 313	57	.000 660
		28	.019 444	58	.040 278	28	.000 324	58	.000 671
		29	.020 139	59	.040 972	29	.000 336	59	.000 683
		30	0.020 833	60	0.041 667	30	0.000 347	60	.000 694

Table 23.

DECIMALS OF A DAY INTO HOURS, MINUTES AND SECONDS.

Hundredths of a Day.				Ten Thousandths of a Day.			Millionths of a Day.	
d.	h.	m.	s.	d.	min.	sec.	d.	sec.
0.01		14	24	0.0001		8.64	0.000001	0.09
.02		28	48	2		17.28	2	0.17
.03		43	12	3		25.92	3	0.26
.04		57	36	4		34.56	4	0.35
0.05	1	12	0	0.0005		43.20	0.000005	0.43
.06	1	26	24	6		51.84	6	0.52
.07	1	40	48	7	1	0.48	7	0.60
.08	1	55	12	8	1	9.12	8	0.69
.09	2	9	36	9	1	17.76	9	0.78
0.10	2	24	0	0.0010	1	26.40	0.000010	0.86
.20	4	48	0	20	2	52.80	20	1.73
.30	7	12	0	30	4	19.20	30	2.59
.40	9	36	0	40	5	45.60	40	3.46
0.50	12	0	0	0.0050	7	12.00	0.000050	4.32
.60	14	24	0	60	8	38.40	60	5.18
.70	16	48	0	70	10	4.80	70	6.05
.80	19	12	0	80	11	31.20	80	6.91
.90	21	36	0	90	12	57.60	90	7.78

MINUTES AND SECONDS INTO DECIMALS OF AN HOUR.

Min.	Decimals of an hour.	Min.	Decimals of an hour.	Sec.	Decimals of an hour.	Sec.	Decimals of an hour.
1	0.016 667	31	0.516 667	1	0.000 278	31	0.008 611
2	.033 333	32	.533 333	2	.000 556	32	.008 889
3	.050 000	33	.550 000	3	.000 833	33	.009 167
4	.066 667	34	.566 667	4	.001 111	34	.009 444
5	0.083 333	35	0.583 333	5	0.001 389	35	0.009 722
6	.100 000	36	.600 000	6	.001 667	36	.010 000
7	.116 667	37	.616 667	7	.001 944	37	.010 278
8	.133 333	38	.633 333	8	.002 222	38	.010 556
9	.150 000	39	.650 000	9	.002 500	39	.010 833
10	0.166 667	40	0.666 667	10	0.002 778	40	0.011 111
11	.183 333	41	.683 333	11	.003 056	41	.011 389
12	.200 000	42	.700 000	12	.003 333	42	.011 667
13	.216 667	43	.716 667	13	.003 611	43	.011 944
14	.233 333	44	.733 333	14	.003 889	44	.012 222
15	0.250 000	45	0.750 000	15	0.004 167	45	0.012 500
16	.266 667	46	.766 667	16	.004 444	46	.012 778
17	.283 333	47	.783 333	17	.004 722	47	.013 056
18	.300 000	48	.800 000	18	.005 000	48	.013 333
19	.316 667	49	.816 667	19	.005 278	49	.013 611
20	0.333 333	50	0.833 333	20	0.005 556	50	0.013 889
21	.350 000	51	.850 000	21	.005 833	51	.014 167
22	.366 667	52	.866 667	22	.006 111	52	.014 444
23	.383 333	53	.883 333	23	.006 389	53	.014 722
24	.400 000	54	.900 000	24	.006 667	54	.015 000
25	0.416 667	55	0.916 667	25	0.006 944	55	0.015 278
26	.433 333	56	.933 333	26	.007 222	56	.015 556
27	.450 000	57	.950 000	27	.007 500	57	.015 833
28	.466 667	58	.966 667	28	.007 778	58	.016 111
29	.483 333	59	.983 333	29	.008 056	59	.016 389
30	0.500 000	60	1.000 000	30	0.008 333	60	0.016 667

Table 25.

LOCAL MEAN TIME AT APPARENT NOON.

Day of Month.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
1	12 4	12 14	12 12	12 4	11 57	11 58
8	12 7	12 14	12 11	12 2	11 56	11 59
16	12 10	12 14	12 9	12 0	11 56	12 0
24	12 12	12 13	12 6	11 58	11 57	12 2
	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
1	12 4	12 6	12 0	11 50	11 44	11 49
8	12 5	12 5	11 58	11 48	11 44	11 52
16	12 6	12 4	11 55	11 46	11 45	11 56
24	12 6	12 2	11 52	11 44	11 47	12 0

Table 26.

SIDEREAL TIME INTO MEAN SOLAR TIME.

The tabular values are to be *subtracted* from a sidereal time interval.

Hrs.	Reduction to Mean Time.	Min.	Reduction to Mean Time.	Min.	Reduction to Mean Time.
h.	m. s.	m.	s.	m.	s.
1	0 9.83	1	0.16	31	5.08
2	0 19.66	2	0.33	32	5.24
3	0 29.49	3	0.49	33	5.41
4	0 39.32	4	0.66	34	5.57
5	0 49.15	5	0.82	35	5.73
6	0 58.98	6	0.98	36	5.90
7	1 8.81	7	1.15	37	6.06
8	1 18.64	8	1.31	38	6.23
9	1 28.47	9	1.47	39	6.39
10	1 38.30	10	1.64	40	6.55
11	1 48.13	11	1.80	41	6.72
12	1 57.95	12	1.97	42	6.88
13	2 7.78	13	2.13	43	7.04
14	2 17.61	14	2.29	44	7.21
15	2 27.44	15	2.46	45	7.37
16	2 37.27	16	2.62	46	7.54
17	2 47.10	17	2.79	47	7.70
18	2 56.93	18	2.95	48	7.86
19	3 6.76	19	3.11	49	8.03
20	3 16.59	20	3.28	50	8.19
21	3 26.42	21	3.44	51	8.36
22	3 36.25	22	3.60	52	8.52
23	3 46.08	23	3.77	53	8.68
24	3 55.91	24	3.93	54	8.85
		25	4.10	55	9.01
		26	4.26	56	9.17
		27	4.42	57	9.34
		28	4.59	58	9.50
		29	4.75	59	9.67
		30	4.91	60	9.83

Table 27.

MEAN SOLAR TIME INTO SIDEREAL TIME.

The tabular values are to be *added* to a mean solar time interval.

Hrs.	Reduction to Sidereal Time.	Min.	Reduction to Sidereal Time.	Min.	Reduction to Sidereal Time.
h.	m. s.	m.	s.	m.	s.
1	0 9.86	1	0.16	31	5.09
2	0 19.71	2	0.33	32	5.26
3	0 29.57	3	0.49	33	5.42
4	0 39.43	4	0.66	34	5.59
5	0 49.28	5	0.82	35	5.75
6	0 59.14	6	0.99	36	5.91
7	1 9.00	7	1.15	37	6.08
8	1 18.85	8	1.31	38	6.24
9	1 28.71	9	1.48	39	6.41
10	1 38.56	10	1.64	40	6.57
11	1 48.42	11	1.81	41	6.74
12	1 58.28	12	1.97	42	6.90
13	2 8.13	13	2.14	43	7.06
14	2 17.99	14	2.30	44	7.23
15	2 27.85	15	2.46	45	7.39
16	2 37.70	16	2.63	46	7.56
17	2 47.56	17	2.79	47	7.72
18	2 57.42	18	2.96	48	7.89
19	3 7.27	19	3.12	49	8.05
20	3 17.13	20	3.29	50	8.21
21	3 26.99	21	3.45	51	8.38
22	3 36.84	22	3.61	52	8.54
23	3 46.70	23	3.78	53	8.71
24	3 56.56	24	3.94	54	8.87
		25	4.11	55	9.04
		26	4.27	56	9.20
		27	4.44	57	9.36
		28	4.60	58	9.53
		29	4.76	59	9.69
		30	4.93	60	9.86

Reduction for Seconds—sidereal or mean solar.

The tabular values are to be { *subtracted* from a sidereal / *added* to a mean solar } time interval.

Sidereal or Mean Time.	0	1	2	3	4	5	6	7	8	9
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
10	.03	.03	.03	.04	.04	.04	.04	.05	.05	.05
20	.05	.06	.06	.06	.07	.07	.07	.07	.08	.08
30	.08	.08	.09	.09	.09	.10	.10	.10	.10	.11
40	.11	.11	.11	.12	.12	.12	.13	.13	.13	.13
50	0.14	0.14	0.14	0.15*	0.15	0.15	0.15	0.16	0.16	0.16

* Subtract 0.14 from a sidereal time interval.

CONVERSION OF MEASURES OF WEIGHT.

AVOIRDUPOIS POUNDS AND OUNCES INTO KILOGRAMS.

1 avoirdupois pound = 0.4535924 kilogram.
1 avoirdupois ounce = 0.0283495 kilogram.

Pounds.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	kg.	kg.	kg.	kg.	kg.	kg.	kg.	kg.	kg.	kg.
0	0.0000	0.0454	0.0907	0.1361	0.1814	0.2268	0.2722	0.3175	0.3629	0.4082
1	0.4536	0.4990	0.5443	0.5897	0.6350	0.6804	0.7257	0.7711	0.8165	0.8618
2	0.9072	0.9525	0.9979	1.0433	1.0886	1.1340	1.1793	1.2247	1.2701	1.3154
3	1.3608	1.4061	1.4515	1.4969	1.5422	1.5876	1.6329	1.6783	1.7237	1.7690
4	1.8144	1.8597	1.9051	1.9504	1.9958	2.0412	2.0865	2.1319	2.1772	2.2226
5	2.2680	2.3133	2.3587	2.4040	2.4494	2.4948	2.5401	2.5855	2.6308	2.6762
6	2.7216	2.7669	2.8123	2.8576	2.9030	2.9484	2.9937	3.0391	3.0844	3.1298
7	3.1751	3.2205	3.2659	3.3112	3.3566	3.4019	3.4473	3.4927	3.5380	3.5834
8	3.6287	3.6741	3.7195	3.7648	3.8102	3.8555	3.9009	3.9463	3.9916	4.0370
9	4.0823	4.1277	4.1731	4.2184	4.2638	4.3091	4.3545	4.3998	4.4452	4.4906

Ounces.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	kg.	kg.	kg.	kg.	kg.	kg.	kg.	kg.	kg.	kg.
0	0.0000	0.0028	0.0057	0.0085	0.0113	0.0142	0.0170	0.0198	0.0227	0.0255
1	.0283	.0312	.0340	.0369	.0397	.0425	.0454	.0482	.0510	.0539
2	.0567	.0595	.0624	.0652	.0680	.0709	.0737	.0765	.0794	.0822
3	.0850	.0879	.0907	.0936	.0964	.0992	.1021	.1049	.1077	.1106
4	.1134	.1162	.1191	.1219	.1247	.1276	.1304	.1332	.1361	.1389
5	0.1417	0.1446	0.1474	0.1503	0.1531	0.1559	0.1588	0.1616	0.1644	0.1673
6	.1701	.1729	.1758	.1786	.1814	.1843	.1871	.1899	.1928	.1956
7	.1984	.2013	.2041	.2070	.2098	.2126	.2155	.2183	.2211	.2240
8	.2268	.2296	.2325	.2353	.2381	.2410	.2438	.2466	.2495	.2523
9	.2551	.2580	.2608	.2637	.2665	.2693	.2722	.2750	.2778	.2807
10	0.2835	0.2863	0.2892	0.2920	0.2948	0.2977	0.3005	0.3033	0.3062	0.3090
11	.3118	.3147	.3175	.3203	.3232	.3260	.3289	.3317	.3345	.3374
12	.3402	.3430	.3459	.3487	.3515	.3544	.3572	.3600	.3629	.3657
13	.3685	.3714	.3742	.3770	.3799	.3827	.3856	.3884	.3912	.3941
14	.3969	.3997	.4026	.4054	.4082	.4111	.4139	.4167	.4196	.4224
15	.4252	.4281	.4309	.4337	.4366	.4394	.4423	.4451	.4479	.4508

TABLE 29.

KILOGRAMS INTO AVOIRDUPOIS POUNDS AND OUNCES.

I kilogram = 2.204622 avoirdupois pounds.

Kilograms.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Av. lbs.	Av. lbs.	Av. lbs.	Av. lbs.	Av. lbs.	Av. lbs.	Av. lbs.	Av. lbs.	Av. lbs.	Av. lbs.
0	0.000	0.220	0.441	0.661	0.882	1.102	1.323	1.543	1.764	1.984
1	2.205	2.425	2.646	2.866	3.086	3.307	3.527	3.748	3.968	4.189
2	4.409	4.630	4.850	5.071	5.291	5.512	5.732	5.952	6.173	6.393
3	6.614	6.834	7.055	7.275	7.496	7.716	7.937	8.157	8.378	8.598
4	8.818	9.039	9.259	9.480	9.700	9.921	10.141	10.362	10.582	10.803
5	11.023	11.244	11.464	11.684	11.905	12.125	12.346	12.566	12.787	13.007
6	13.228	13.448	13.669	13.889	14.110	14.330	14.551	14.771	14.991	15.212
7	15.432	15.653	15.873	16.094	16.314	16.535	16.755	16.976	17.196	17.417
8	17.637	17.857	18.078	18.298	18.519	18.739	18.960	19.180	19.401	19.621
9	19.842	20.062	20.283	20.503	20.723	20.944	21.164	21.385	21.605	21.826

Tenths of a Kilogram into Ounces.				Hundredths of a Kilogram into Decimals of a Pound and Ounces.			
kg.	Oz.	kg.	Oz.	kg.	Av. lbs. Oz.	kg.	Av. lbs. Oz.
0.1	3.5274	0.6	21.1644	0.01	0.022 = 0.35	0.06	0.132 = 2.12
.2	7.0548	.7	24.6918	.02	.044 = 0.71	.07	.154 = 2.47
.3	10.5822	.8	28.2192	.03	.066 = 1.06	.08	.176 = 2.82
.4	14.1096	.9	31.7466	.04	.088 = 1.41	.09	.198 = 3.17
.5	17.6370	1.0	35.2740	.05	.110 = 1.76	.10	.220 = 3.53

TABLE 30.

GRAINS INTO GRAMS.

I grain = 0.06479892 gram.

Grains.	0	1	2	3	4	5	6	7	8	9
	grams.	grams.	grams.	grams.	grams.	grams.	grams.	grams.	grams.	grams.
0	0.0000	0.0648	0.1296	0.1944	0.2592	0.3240	0.3888	0.4536	0.5184	0.5832
10	0.6480	0.7128	0.7776	0.8424	0.9072	0.9720	1.0368	1.1016	1.1664	1.2312
20	1.2960	1.3608	1.4256	1.4904	1.5552	1.6200	1.6848	1.7496	1.8144	1.8792
30	1.9440	2.0088	2.0736	2.1384	2.2032	2.2680	2.3328	2.3976	2.4624	2.5272
40	2.5920	2.6568	2.7216	2.7864	2.8512	2.9160	2.9808	3.0455	3.1103	3.1751
50	3.2399	3.3047	3.3695	3.4343	3.4991	3.5639	3.6287	3.6935	3.7583	3.8231
60	3.8879	3.9527	4.0175	4.0823	4.1471	4.2119	4.2767	4.3415	4.4063	4.4711
70	4.5359	4.6007	4.6655	4.7303	4.7951	4.8599	4.9247	4.9895	5.0543	5.1191
80	5.1839	5.2487	5.3135	5.3783	5.4431	5.5079	5.5727	5.6375	5.7023	5.7671
90	5.8319	5.8967	5.9615	6.0263	6.0911	6.1559	6.2207	6.2855	6.3503	6.4151

Tenths of a Grain.				Hundredths of a Grain.			
Grain.	gram.	Grain.	gram.	Grain.	gram.	Grain.	gram.
0.1	0.0065	0.6	0.0389	0.01	0.0006	0.06	0.0039
.2	.0130	.7	.0454	.02	.0013	.07	.0045
.3	.0194	.8	.0518	.03	.0019	.08	.0052
.4	.0259	.9	.0583	.04	.0026	.09	.0058
.5	.0324	1.0	.0648	.05	.0032	.10	.0065

Table 31.

GRAMS INTO GRAINS.

1 gram = 15.432356 grains.

Grams.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.
0	0.00	1.54	3.09	4.63	6.17	7.72	9.26	10.80	12.35	13.89
1	15.43	16.98	18.52	20.06	21.61	23.15	24.69	26.24	27.78	29.32
2	30.86	32.41	33.95	35.49	37.04	38.58	40.12	41.67	43.21	44.75
3	46.30	47.84	49.38	50.93	52.47	54.01	55.56	57.10	58.64	60.19
4	61.73	63.27	64.82	66.36	67.90	69.45	70.99	72.53	74.08	75.62
5	77.16	78.71	80.25	81.79	83.33	84.88	86.42	87.96	89.51	91.05
6	92.59	94.14	95.68	97.22	98.77	100.31	101.85	103.40	104.94	106.48
7	108.03	109.57	111.11	112.66	114.20	115.74	117.29	118.83	120.37	121.92
8	123.46	125.00	126.55	128.09	129.63	131.18	132.72	134.26	135.80	137.35
9	138.89	140.43	141.98	143.52	145.06	146.61	148.15	149.69	151.24	152.78

Grams.	0	1	2	3	4	5	6	7	8	9
	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.	Grains.
0	0.00	15.43	30.86	46.30	61.73	77.16	92.59	108.03	123.46	138.89
10	154.32	169.76	185.19	200.62	216.05	231.49	246.92	262.35	277.78	293.21
20	308.65	324.08	339.51	354.94	370.38	385.81	401.24	416.67	432.11	447.54
30	462.97	478.40	493.84	509.27	524.70	540.13	555.56	571.00	586.43	601.86
40	617.29	632.73	648.16	663.59	679.02	694.46	709.89	725.32	740.75	756.19
50	771.62	787.05	802.48	817.91	833.35	848.78	864.21	879.64	895.08	910.51
60	925.94	941.37	956.81	972.24	987.67	1003.10	1018.54	1033.97	1049.40	1064.83
70	1080.26	1095.70	1111.13	1126.56	1141.99	1157.43	1172.86	1188.29	1203.72	1219.16
80	1234.59	1250.02	1265.45	1280.89	1296.32	1311.75	1327.18	1342.61	1358.05	1373.48
90	1388.91	1404.34	1419.78	1435.21	1450.64	1466.07	1481.51	1496.94	1512.37	1527.80

gram.	Grain.	gram.	Grain.	gram.	Grain.	gram.	Grain.
0.01	0.154	0.06	0.926	0.001	0.015	0.006	0.093
.02	.309	.07	1.080	.002	.031	.007	.108
.03	.463	.08	1.235	.003	.046	.008	.123
.04	.617	.09	1.389	.004	.062	.009	.139
.05	.772	.10	1.543	.005	.077	.010	.154

WIND TABLES.

SYNOPTIC CONVERSION OF VELOCITIES.

Miles per hour into meters per second, feet per second and kilometers per hour.

Miles per hour.	Meters per second.	Feet per second.	Kilometers per hour.	Miles per hour.	Meters per second.	Feet per second.	Kilometers per hour.	Miles per hour.	Meters per second.	Feet per second.	Kilometers per hour.
0.0	0.0	0.0	0.0	**26.0**	11.6	38.1	41.8	**52.0**	23.2	76.3	83.7
0.5	0.2	0.7	0.8	26.5	11.8	38.9	42.6	52.5	23.5	77.0	84.5
1.0	0.4	1.5	1.6	27.0	12.1	39.6	43.5	53.0	23.7	77.7	85.3
1.5	0.7	2.2	2.4	27.5	12.3	40.3	44.3	53.5	23.9	78.5	86.1
2.0	0.9	2.9	3.2	28.0	12.5	41.1	45.1	54.0	24.1	79.2	86.9
2.5	1.1	3.7	4.0	28.5	12.7	41.8	45.9	54.5	24.4	79.9	87.7
3.0	1.3	4.4	4.8	**29.0**	13.0	42.5	46.7	**55.0**	24.6	80.7	88.5
3.5	1.6	5.1	5.6	29.5	13.2	43.3	47.5	55.5	24.8	81.4	89.3
4.0	1.8	5.9	6.4	30.0	13.4	44.0	48.3	56.0	25.0	82.1	90.1
4.5	2.0	6.6	7.2	30.5	13.6	44.7	49.1	56.5	25.3	82.9	90.9
5.0	2.2	7.3	8.0	31.0	13.9	45.5	49.9	57.0	25.5	83.6	91.7
5.5	2.5	8.1	8.9	31.5	14.1	46.2	50.7	57.5	25.7	84.3	92.5
6.0	2.7	8.8	9.7	**32.0**	14.3	46.9	51.5	**58.0**	25.9	85.1	93.3
6.5	2.9	9.5	10.5	32.5	14.5	47.7	52.3	58.5	26.2	85.8	94.1
7.0	3.1	10.3	11.3	33.0	14.8	48.4	53.1	59.0	26.4	86.5	95.0
7.5	3.4	11.0	12.1	33.5	15.0	49.1	53.9	59.5	26.6	87.3	95.8
8.0	3.6	11.7	12.9	34.0	15.2	49.9	54.7	60.0	26.8	88.0	96.6
8.5	3.8	12.5	13.7	34.5	15.4	50.6	55.5	60.5	27.0	88.7	97.4
9.0	4.0	13.2	14.5	**35.0**	15.6	51.3	56.3	**61.0**	27.3	89.5	98.2
9.5	4.2	13.9	15.3	35.5	15.9	52.1	57.1	61.5	27.5	90.2	99.0
10.0	4.5	14.7	16.1	36.0	16.1	52.8	57.9	62.0	27.7	90.9	99.8
10.5	4.7	15.4	16.9	36.5	16.3	53.5	58.7	62.5	27.9	91.7	100.6
11.0	4.9	16.1	17.7	37.0	16.5	54.3	59.5	63.0	28.2	92.4	101.4
11.5	5.1	16.9	18.5	37.5	16.8	55.0	60.4	63.5	28.4	93.1	102.2
12.0	5.4	17.6	19.3	**38.0**	17.0	55.7	61.2	**64.0**	28.6	93.9	103.0
12.5	5.6	18.3	20.1	38.5	17.2	56.5	62.0	64.5	28.8	94.6	103.8
13.0	5.8	19.1	20.9	39.0	17.4	57.2	62.8	65.0	29.1	95.3	104.6
13.5	6.0	19.8	21.7	39.5	17.7	57.9	63.6	65.5	29.3	96.1	105.4
14.0	6.3	20.5	22.5	40.0	17.9	58.7	64.4	66.0	29.5	96.8	106.2
14.5	6.5	21.3	23.3	40.5	18.1	59.4	65.2	66.5	29.7	97.5	107.0
15.0	6.7	22.0	24.1	**41.0**	18.3	60.1	66.0	**67.0**	30.0	98.3	107.8
15.5	6.9	22.7	24.9	41.5	18.6	60.9	66.8	67.5	30.2	99.0	108.6
16.0	7.2	23.5	25.7	42.0	18.8	61.6	67.6	68.0	30.4	99.7	109.4
16.5	7.4	24.2	26.6	42.5	19.0	62.3	68.4	68.5	30.6	100.5	110.2
17.0	7.6	24.9	27.4	43.0	19.2	63.1	69.2	69.0	30.8	101.2	111.0
17.5	7.8	25.7	28.2	43.5	19.4	63.8	70.0	69.5	31.1	101.9	111.8
18.0	8.0	26.4	29.0	**44.0**	19.7	64.5	70.8	**70.0**	31.3	102.7	112.7
18.5	8.3	27.1	29.8	44.5	19.9	65.3	71.6	70.5	31.5	103.4	113.5
19.0	8.5	27.9	30.6	45.0	20.1	66.0	72.4	71.0	31.7	104.1	114.3
19.5	8.7	28.6	31.4	45.5	20.3	66.7	73.2	71.5	32.0	104.9	115.1
20.0	8.9	29.3	32.2	46.0	20.6	67.5	74.0	72.0	32.2	105.6	115.9
20.5	9.2	30.1	33.0	46.5	20.8	68.2	74.8	72.5	32.4	106.3	116.7
21.0	9.4	30.8	33.8	**47.0**	21.0	68.9	75.6	**73.0**	32.6	107.1	117.5
21.5	9.6	31.5	34.6	47.5	21.2	69.7	76.4	73.5	32.9	107.8	118.3
22.0	9.8	32.3	35.4	48.0	21.5	70.4	77.2	74.0	33.1	108.5	119.1
22.5	10.1	33.0	36.2	48.5	21.7	71.1	78.1	74.5	33.3	109.3	119.9
23.0	10.3	33.7	37.0	49.0	21.9	71.9	78.9	75.0	33.5	110.0	120.7
23.5	10.5	34.5	37.8	49.5	22.1	72.6	79.7	75.5	33.8	110.7	121.5
24.0	10.7	35.2	38.6	**50.0**	22.4	73.3	80.5	**76.0**	34.0	111.5	122.3
24.5	11.0	35.9	39.4	50.5	22.6	74.1	81.3	76.5	34.2	112.2	123.1
25.0	11.2	36.7	40.2	51.0	22.8	74.8	82.1	77.0	34.4	112.9	123.9
25.5	11.4	37.4	41.0	51.5	23.0	75.5	82.9	77.5	34.6	113.7	124.7
26.0	11.6	38.1	41.8	52.0	23.2	76.3	83.7	78.0	34.9	114.4	125.5

TABLE 33.

MILES PER HOUR INTO FEET PER SECOND.

1 mile per hour $= \frac{44}{30}$ feet per second.

Miles per hour.	0	1	2	3	4	5	6	7	8	9
	Feet per sec.	Feet per sec.	Feet per sec.	Feet per sec.	Feet per sec	Feet per sec.	Feet per sec.	Feet per sec.	Feet per sec.	Feet per sec.
0	0.0	1.5	2.9	4.4	5.9	7.3	8.8	10.3	11.7	13.2
10	14.7	16.1	17.6	19.1	20.5	22.0	23.5	24.9	26.4	27.9
20	29.3	30.8	32.3	33.7	35.2	36.7	38.1	39.6	41.1	42.5
30	44.0	45.5	46.9	48.4	49.9	51.3	52.8	54.3	55.7	57.2
40	58.7	60.1	61.6	63.1	64.5	66.0	67.5	68.9	70.4	71.9
50	73.3	74.8	76.3	77.7	79.2	80.7	82.1	83.6	85.1	86.5
60	88.0	89.5	90.9	92.4	93.9	95.3	96.8	98.3	99.7	101.2
70	102.7	104.1	105.6	107.1	108.5	110.0	111.5	112.9	114.4	115.9
80	117.3	118.8	120.3	121.7	123.2	124.7	126.1	127.6	129.1	130.5
90	132.0	133.5	134.9	136.4	137.9	139.3	140.8	142.3	143.7	145.2
100	146.7	148.1	149.6	151.1	152.5	154.0	155.5	156.9	158.4	159.9
110	161.3	162.8	164.3	165.7	167.2	168.7	170.1	171.6	173.1	174.5
120	176.0	177.5	178.9	180.4	181.9	183.3	184.8	186.3	187.7	189.2
130	190.7	192.1	193.6	195.1	196.5	198.0	199.5	200.9	202.4	203.9
140	205.3	206.8	208.3	209.7	211.2	212.7	214.1	215.6	217.1	218.5

TABLE 34.

FEET PER SECOND INTO MILES PER HOUR.

1 foot per second $= \frac{30}{44}$ miles per hour.

Feet per sec.	0	1	2	3	4	5	6	7	8	9
	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.
0	0.0	0.7	1.4	2.0	2.7	3.4	4.1	4.8	5.5	6.1
10	6.8	7.5	8.2	8.9	9.5	10.2	10.9	11.6	12.3	13.0
20	13.6	14.3	15.0	15.7	16.4	17.0	17.7	18.4	19.1	19.8
30	20.5	21.1	21.8	22.5	23.2	23.9	24.5	25.2	25.9	26.6
40	27.3	28.0	28.6	29.3	30.0	30.7	31.4	32.0	32.7	33.4
50	34.1	34.8	35.5	36.1	36.8	37.5	38.2	38.9	39.5	40.2
60	40.9	41.6	42.3	43.0	43.6	44.3	45.0	45.7	46.4	47.0
70	47.7	48.4	49.1	49.8	50.5	51.1	51.8	52.5	53.2	53.9
80	54.5	55.2	55.9	56.6	57.3	58.0	58.6	59.3	60.0	60.7
90	61.4	62.0	62.7	63.4	64.1	64.8	65.5	66.1	66.8	67.5
100	68.2	68.9	69.5	70.2	70.9	71.6	72.3	73.0	73.6	74.3
110	75.0	75.7	76.4	77.0	77.7	78.4	79.1	79.8	80.5	81.1
120	81.8	82.5	83.2	83.9	84.5	85.2	85.9	86.6	87.3	88.0
130	88.6	89.3	90.0	90.7	91.4	92.0	92.7	93.4	94.1	94.8
140	95.5	96.1	96.8	97.5	98.2	98.9	99.5	100.2	100.9	101.6
150	102.3	103.0	103.6	104.3	105.0	105.7	106.4	107.0	107.7	108.4
160	109.1	109.8	110.5	111.1	111.8	112.5	113.2	113.9	114.5	115.2
170	115.9	116.6	117.3	118.0	118.6	119.3	120.0	120.7	121.4	120.0
180	122.7	123.4	124.1	124.8	125.5	126.1	126.8	127.5	128.2	128.9
190	129.5	130.2	130.9	131.6	132.3	133.0	133.6	134.3	135.0	135.7

METERS PER SECOND INTO MILES PER HOUR.

1 meter per second = 2.236932 miles per hour.

Meters per second.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.
0	0.0	0.2	0.4	0.7	0.9	1.1	1.3	1.6	1.8	2.0
1	2.2	2.5	2.7	2.9	3.1	3.4	3.6	3.8	4.0	4.3
2	4.5	4.7	4.9	5.1	5.4	5.6	5.8	6.0	6.3	6.5
3	6.7	6.9	7.2	7.4	7.6	7.8	8.1	8.3	8.5	8.7
4	8.9	9.2	9.4	9.6	9.8	10.1	10.3	10.5	10.7	11.0
5	11.2	11.4	11.6	11.9	12.1	12.3	12.5	12.8	13.0	13.2
6	13.4	13.6	13.9	14.1	14.3	14.5	14.8	15.0	15.2	15.4
7	15.7	15.9	16.1	16.3	16.6	16.8	17.0	17.2	17.4	17.7
8	17.9	18.1	18.3	18.6	18.8	19.0	19.2	19.5	19.7	19.9
9	20.1	20.4	20.6	20.8	21.0	21.3	21.5	21.7	21.9	22.1
10	22.4	22.6	22.8	23.0	23.3	23.5	23.7	23.9	24.2	24.4
11	24.6	24.8	25.1	25.3	25.5	25.7	25.9	26.2	26.4	26.6
12	26.8	27.1	27.3	27.5	27.7	28.0	28.2	28.4	28.6	28.9
13	29.1	29.3	29.5	29.8	30.0	30.2	30.4	30.6	30.9	31.1
14	31.3	31.5	31.8	32.0	32.2	32.4	32.7	32.9	33.1	33.3
15	33.6	33.8	34.0	34.2	34.4	34.7	34.9	35.1	35.3	35.6
16	35.8	36.0	36.2	36.5	36.7	36.9	37.1	37.4	37.6	37.8
17	38.0	38.3	38.5	38.7	38.9	39.1	39.4	39.6	39.8	40.0
18	40.3	40.5	40.7	40.9	41.2	41.4	41.6	41.8	42.1	42.3
19	42.5	42.7	43.0	43.2	43.4	43.6	43.8	44.1	44.3	44.5
20	44.7	45.0	45.2	45.4	45.6	45.9	46.1	46.3	46.5	46.8
21	47.0	47.2	47.4	47.6	47.9	48.1	48.3	48.5	48.8	49.0
22	49.2	49.4	49.7	49.9	50.1	50.3	50.6	50.8	51.0	51.2
23	51.5	51.7	51.9	52.1	52.3	52.6	52.8	53.0	53.2	53.5
24	53.7	53.9	54.1	54.4	54.6	54.8	55.0	55.3	55.5	55.7
25	55.9	56.1	56.4	56.6	56.8	57.0	57.3	57.5	57.7	57.9
26	58.2	58.4	58.6	58.8	59.1	59.3	59.5	59.7	60.0	60.2
27	60.4	60.6	60.8	61.1	61.3	61.5	61.7	62.0	62.2	62.4
28	62.6	62.9	63.1	63.3	63.5	63.8	64.0	64.2	64.4	64.6
29	64.9	65.1	65.3	65.5	65.8	66.0	66.2	66.4	66.7	66.9
30	67.1	67.3	67.6	67.8	68.0	68.2	68.5	68.7	68.9	69.1
31	69.3	69.6	69.8	70.0	70.2	70.5	70.7	70.9	71.1	71.4
32	71.6	71.8	72.0	72.3	72.5	72.7	72.9	73.1	73.4	73.6
33	73.8	74.0	74.3	74.5	74.7	74.9	75.2	75.4	75.6	75.8
34	76.1	76.3	76.5	76.7	77.0	77.2	77.4	77.6	77.8	78.1
35	78.3	78.5	78.7	79.0	79.2	79.4	79.6	79.9	80.1	80.3
36	80.5	80.8	81.0	81.2	81.4	81.6	81.9	82.1	82.3	82.5
37	82.8	83.0	83.2	83.4	83.7	84.0	84.1	84.3	84.6	84.8
38	85.0	85.2	85.5	85.7	85.9	86.1	86.3	86.6	86.8	87.0
39	87.2	87.5	87.7	87.9	88.1	88.4	88.6	88.8	89.0	89.3
40	89.5	89.7	89.9	90.2	90.4	90.6	90.8	91.0	91.3	91.5
41	91.7	91.9	92.2	92.4	92.6	92.8	93.1	93.3	93.5	93.7
42	94.0	94.2	94.4	94.6	94.8	95.1	95.3	95.5	95.7	96.0
43	96.2	96.4	96.6	96.9	97.1	97.3	97.5	97.8	98.0	98.2
44	98.4	98.7	98.9	99.1	99.3	99.5	99.8	100.0	100.2	100.4

METERS PER SECOND INTO MILES PER HOUR.

Meters per second.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.	Miles per hr.
45	100.7	100.9	101.1	101.3	101.6	101.8	102.0	102.2	102.5	102.7
46	102.9	103.1	103.3	103.6	103.8	104.0	104.2	104.5	104.7	104.9
47	105.1	105.4	105.6	105.8	106.0	106.3	106.5	106.7	106.9	107.2
48	107.4	107.6	107.8	108.0	108.3	108.5	108.7	108.9	109.2	109.4
49	109.6	109.8	110.1	110.3	110.5	110.7	111.0	111.2	111.4	111.6
50	111.8	112.1	112.3	112.5	112.7	113.0	113.2	113.4	113.6	113.9
51	114.1	114.3	114.5	114.8	115.0	115.2	115.4	115.7	115.9	116.1
52	116.3	116.6	116.8	117.0	117.2	117.4	117.7	117.9	118.1	118.3
53	118.6	118.8	119.0	119.2	119.5	119.7	119.9	120.1	120.4	120.6
54	120.8	121.0	121.3	121.5	121.7	121.9	122.1	122.4	122.6	122.8
55	123.0	123.3	123.5	123.7	123.9	124.2	124.4	124.6	124.8	125.1
56	125.3	125.5	125.7	126.0	126.2	126.4	126.6	126.8	127.1	127.3
57	127.5	127.8	128.0	128.2	128.4	128.6	128.9	129.1	129.3	129.5
58	129.7	130.0	130.2	130.4	130.7	130.9	131.1	131.3	131.6	131.8
59	132.0	132.2	132.5	132.7	132.9	133.1	133.3	133.6	133.8	134.0

MILES PER HOUR INTO METERS PER SECOND.

1 mile per hour = 0.4470409 meters per second.

Miles per hour.	0	1	2	3	4	5	6	7	8	9
	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.
0	0.00	0.45	0.89	1.34	1.79	2.24	2.68	3.13	3.58	4.02
10	4.47	4.92	5.36	5.81	6.26	6.71	7.15	7.60	8.05	8.49
20	8.94	9.39	9.83	10.28	10.73	11.18	11.62	12.07	12.52	12.96
30	13.41	13.86	14.31	14.75	15.20	15.65	16.09	16.54	16.99	17.43
40	17.88	18.33	18.78	19.22	19.67	20.12	20.56	21.01	21.46	21.90
50	22.35	22.80	23.25	23.69	24.14	24.59	25.03	25.48	25.93	26.37
60	26.82	27.27	27.72	28.16	28.61	29.06	29.50	29.95	30.40	30.85
70	31.29	31.74	32.19	32.63	33.08	33.53	33.98	34.42	34.87	35.32
80	35.76	36.21	36.66	37.10	37.55	38.00	38.44	38.89	39.34	39.79
90	40.23	40.68	41.13	41.57	42.02	42.47	42.92	43.36	43.81	44.26
100	44.70	45.15	45.60	46.04	46.49	46.94	47.39	47.83	48.28	48.73
110	49.17	49.62	50.07	50.51	50.96	51.41	51.86	52.30	52.75	53.20
120	53.64	54.09	54.54	54.98	55.43	55.88	56.33	56.77	57.22	57.67
130	58.12	58.56	59.01	59.46	59.90	60.35	60.80	61.24	61.69	62.14
140	62.59	63.03	63.48	63.93	64.37	64.82	65.27	65.72	66.16	66.61

METERS PER SECOND INTO KILOMETERS PER HOUR.

1 meter per second = 3.6 kilometers per hour.

Meters per second.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.
0	0.0	0.4	0.7	1.1	1.4	1.8	2.2	2.5	2.9	3.2
1	3.6	4.0	4.3	4.7	5.0	5.4	5.8	6.1	6.5	6.8
2	7.2	7.6	7.9	8.3	8.6	9.0	9.4	9.7	10.1	10.4
3	10.8	11.2	11.5	11.9	12.2	12.6	13.0	13.3	13.7	14.0
4	14.4	14.8	15.1	15.5	15.8	16.2	16.6	16.9	17.3	17.6
5	18.0	18.4	18.7	19.1	19.4	19.8	20.2	20.5	20.9	21.2
6	21.6	22.0	22.3	22.7	23.0	23.4	23.8	24.1	24.5	24.8
7	25.2	25.6	25.9	26.3	26.6	27.0	27.4	27.7	28.1	28.4
8	28.8	29.2	29.5	29.9	30.2	30.6	31.0	31.3	31.7	32.0
9	32.4	32.8	33.1	33.5	33.8	34.2	34.6	34.9	35.3	35.6
10	36.0	36.4	36.7	37.1	37.4	37.8	38.2	38.5	38.9	39.2
11	39.6	40.0	40.3	40.7	41.0	41.4	41.8	42.1	42.5	42.8
12	43.2	43.6	43.9	44.3	44.6	45.0	45.4	45.7	46.1	46.4
13	46.8	47.2	47.5	47.9	48.2	48.6	49.0	49.3	49.7	50.0
14	50.4	50.8	51.1	51.5	51.8	52.2	52.6	52.9	53.3	53.6
15	54.0	54.4	54.7	55.1	55.4	55.8	56.2	56.5	56.9	57.2
16	57.6	58.0	58.3	58.7	59.0	59.4	59.8	60.1	60.5	60.8
17	61.2	61.6	61.9	62.3	62.6	63.0	63.4	63.7	64.1	64.4
18	64.8	65.2	65.5	65.9	66.2	66.6	67.0	67.3	67.7	68.0
19	68.4	68.8	69.1	69.5	69.8	70.2	70.6	70.9	71.3	71.6
20	72.0	72.4	72.7	73.1	73.4	73.8	74.2	74.5	74.9	75.2
21	75.6	76.0	76.3	76.7	77.0	77.4	77.8	78.1	78.5	78.8
22	79.2	79.6	79.9	80.3	80.6	81.0	81.4	81.7	82.1	82.4
23	82.8	83.2	83.5	83.9	84.2	84.6	85.0	85.3	85.7	86.0
24	86.4	86.8	87.1	87.5	87.8	88.2	88.6	88.9	89.3	89.6
25	90.0	90.4	90.7	91.1	91.4	91.8	92.2	92.5	92.9	93.2
26	93.6	94.0	94.3	94.7	95.0	95.4	95.8	96.1	96.5	96.8
27	97.2	97.6	97.9	98.3	98.6	99.0	99.4	99.7	100.1	100.4
28	100.8	101.2	101.5	101.9	102.2	102.6	103.0	103.3	103.7	104.0
29	104.4	104.8	105.1	105.5	105.8	106.2	106.6	106.9	107.3	107.6
30	108.0	108.4	108.7	109.1	109.4	109.8	110.2	110.5	110.9	111.2
31	111.6	112.0	112.3	112.7	113.0	113.4	113.8	114.1	114.5	114.8
32	115.2	115.6	115.9	116.3	116.6	117.0	117.4	117.7	118.1	118.4
33	118.8	119.2	119.5	119.9	120.2	120.6	121.0	121.3	121.7	122.0
34	122.4	122.8	123.1	123.5	123.8	124.2	124.6	124.9	125.3	125.6
35	126.0	126.4	126.7	127.1	127.4	127.8	128.2	128.5	128.9	129.2
36	129.6	130.0	130.3	130.7	131.0	131.4	131.8	132.1	132.5	132.8
37	133.2	133.6	133.9	134.3	134.6	135.0	135.4	135.7	136.1	136.4
38	136.8	137.2	137.5	137.9	138.2	138.6	139.0	139.3	139.7	140.0
39	140.4	140.8	141.1	141.5	141.8	142.2	142.6	142.9	143.3	143.6
40	144.0	144.4	144.7	145.1	145.4	145.8	146.2	146.5	146.9	147.2
41	147.6	148.0	148.3	148.7	149.0	149.4	149.8	150.1	150.5	150.8
42	151.2	151.6	151.9	152.3	152.6	153.0	153.4	153.7	154.1	154.4
43	154.8	155.2	155.5	155.9	156.2	156.6	157.0	157.3	157.7	158.0
44	158.4	158.8	159.1	159.5	159.8	160.2	160.6	160.9	161.3	161.6

METERS PER SECOND INTO KILOMETERS PER HOUR.

Meters per second.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.	km. per hr.
45	162.0	162.4	162.7	163.1	163.4	163.8	164.2	164.5	164.9	165.2
46	165.6	166.0	166.3	166.7	167.0	167.4	167.8	168.1	168.5	168.8
47	169.2	169.6	169.9	170.3	170.6	171.0	171.4	171.7	172.1	172.4
48	172.8	173.2	173.5	173.9	174.2	174.6	175.0	175.3	175.7	176.0
49	176.4	176.8	177.1	177.5	177.8	178.2	178.6	178.9	179.3	179.6
50	180.0	180.4	180.7	181.1	181.4	181.8	182.2	182.5	182.9	183.2
51	183.6	184.0	184.3	184.7	185.0	185.4	185.8	186.1	186.5	186.8
52	187.2	187.6	187.9	188.3	188.6	189.0	189.4	189.7	190.1	190.4
53	190.8	191.2	191.5	191.9	192.2	192.6	193.0	193.3	193.7	194.0
54	194.4	194.8	195.1	195.5	195.8	196.2	196.6	196.9	197.3	197.6
55	198.0	198.4	198.7	199.1	199.4	199.8	200.2	200.5	200.9	201.2
56	201.6	202.0	202.3	202.7	203.0	203.4	203.8	204.1	204.5	204.8
57	205.2	205.6	205.9	206.3	206.6	207.0	207.4	207.7	208.1	208.4
58	208.8	209.2	209.5	209.9	210.2	210.6	211.0	211.3	211.7	212.0
59	212.4	212.8	213.1	213.5	213.8	214.2	214.6	214.9	215.3	215.6

KILOMETERS PER HOUR INTO METERS PER SECOND.

1 kilometer per hour $= \frac{10}{36}$ meters per second.

Kilometers per hour.	0	1	2	3	4	5	6	7	8	9
	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.	meters per sec.
0	0.00	0.28	0.56	0.83	1.11	1.39	1.67	1.94	2.22	2.50
10	2.78	3.06	3.33	3.61	3.89	4.17	4.44	4.72	5.00	5.28
20	5.56	5.83	6.11	6.39	6.67	6.94	7.22	7.50	7.78	8.06
30	8.33	8.61	8.89	9.17	9.44	9.72	10.00	10.28	10.56	10.83
40	11.11	11.39	11.67	11.94	12.22	12.50	12.78	13.06	13.33	13.61
50	13.89	14.17	14.44	14.72	15.00	15.28	15.56	15.83	16.11	16.39
60	16.67	16.94	17.22	17.50	17.78	18.06	18.33	18.61	18.89	19.17
70	19.44	19.72	20.00	20.28	20.56	20.83	21.11	21.39	21.67	21.94
80	22.22	22.50	22.78	23.06	23.33	23.61	23.89	24.17	24.44	24.72
90	25.00	25.28	25.56	25.83	26.11	26.39	26.67	26.94	27.22	27.50
100	27.78	28.06	28.33	28.61	28.89	29.17	29.44	29.72	30.00	30.28
110	30.56	30.83	31.11	31.39	31.67	31.94	32.22	32.50	32.78	33.06
120	33.33	33.61	33.89	34.17	34.44	34.72	35.00	35.28	35.56	35.83
130	36.11	36.39	36.67	36.94	37.22	37.50	37.78	38.06	38.33	38.61
140	38.89	39.17	39.44	39.72	40.00	40.28	40.56	40.83	41.11	41.39
150	41.67	41.94	42.22	42.50	42.78	43.06	43.33	43.61	43.89	44.17
160	44.44	44.72	45.00	45.28	45.56	45.83	46.11	46.39	46.67	46.94
170	47.22	47.50	47.78	48.06	48.33	48.61	48.89	49.17	49.44	49.72
180	50.00	50.28	50.56	50.83	51.11	51.39	51.67	51.94	52.22	52.50
190	52.78	53.06	53.33	53.61	53.89	54.17	54.44	54.72	55.00	55.28

Table 39.

SCALE OF VELOCITY EQUIVALENTS OF THE SO-CALLED BEAUFORT SCALE OF WIND.

Beaufort Number.	Explanatory titles.	Mode of estimating aboard sailing vessels.	Specification for use on land.	Meters per second	Miles per hour.
0	Calm		Calm, smoke rises vertically.	Less than 0.3	Less than 1
1	Light air	Sufficient wind for working ship	Direction of wind shown by smoke drift, but not by wind vanes.	0.3–1.5	1–3
2	Slight breeze	Sufficient wind for working ship	Wind felt on face; leaves rustle; ordinary vane moved by wind.	1.6–3.3	4–7
3	Gentle breeze	Sufficient wind for working ship	Leaves and small twigs in constant motion; wind extends light flag.	3.4–5.4	8–12
4	Moderate breeze	Forces most advantageous for sailing with leading wind and all sail drawing	Raises dust and loose paper; small branches are moved.	5.5–7.9	13–18
5	Fresh breeze	Forces most advantageous for sailing with leading wind and all sail drawing	Small trees in leaf begin to sway; crested wavelets form on inland waters.	8.0–10.7	19–24
6	Strong breeze	Reduction of sail necessary with leading wind	Large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty.	10.8–13.8	25–31
7	High wind	Reduction of sail necessary with leading wind	Whole trees in motion; inconvenience felt when walking against wind.	13.9–17.1	32–38
8	Gale	Considerable reduction of sail necessary even with wind quartering	Breaks twigs off trees; generally impedes progress.	17.2–20.7	39–46
9	Strong gale	Considerable reduction of sail necessary even with wind quartering	Slight structural damage occurs (chimney pots and slate removed).	20.8–24.4	47–54
10	Whole gale	Close reefed sail running, or hove to under storm sail	Seldom experienced inland; trees uprooted; considerable structural damage occurs.	24.5–28.4	55–63
11	Storm	Close reefed sail running, or hove to under storm sail	Very rarely experienced, accompanied by widespread damage.	28.5–33.5	64–75
12	Hurricane	No sail can stand even when running		33.6 or above	Above 75

MEAN DIRECTION OF THE WIND BY LAMBERT'S FORMULA.

$$\tan \alpha = \frac{E-W+(NE+SE-NW-SW)\cos 45^\circ}{N-S+(NE+NW-SE-SW)\cos 45^\circ}$$

Multiples of cos 45°.

Number.	0	1	2	3	4	5	6	7	8	9
0	0.0	0.7	1.4	2.1	2.8	3.5	4.2	4.9	5.7	6.4
10	7.1	7.8	8.5	9.2	9.9	10.6	11.3	12.0	12.7	13.4
20	14.1	14.8	15.6	16.3	17.0	17.7	18.4	19.1	19.8	20.5
30	21.2	21.9	22.6	23.3	24.0	24.7	25.5	26.2	26.9	27.6
40	28.3	29.0	29.7	30.4	31.1	31.8	32.5	33.2	33.9	34.6
50	35.4	36.1	36.8	37.5	38.2	38.9	39.6	40.3	41.0	41.7
60	42.4	43.1	43.8	44.5	45.3	46.0	46.7	47.4	48.1	48.8
70	49.5	50.2	50.9	51.6	52.3	53.0	53.7	54.4	55.2	55.9
80	56.6	57.3	58.0	58.7	59.4	60.1	60.8	61.5	62.2	62.9
90	63.6	64.3	65.1	65.8	66.5	67.2	67.9	68.6	69.3	70.0
100	70.7	71.4	72.1	72.8	73.5	74.2	75.0	75.7	76.4	77.1
110	77.8	78.5	79.2	79.9	80.6	81.3	82.0	82.7	83.4	84.1
120	84.9	85.6	86.3	87.0	87.7	88.4	89.1	89.8	90.5	91.2
130	91.9	92.6	93.3	94.0	94.8	95.5	96.2	96.9	97.6	98.3
140	99.0	99.7	100.4	101.1	101.8	102.5	103.2	103.9	104.7	105.4
150	106.1	106.8	107.5	108.2	108.9	109.6	110.3	111.0	111.7	112.4
160	113.1	113.8	114.6	115.3	116.0	116.7	117.4	118.1	118.8	119.5
170	120.2	120.9	121.6	122.3	123.0	123.7	124.5	125.2	125.9	126.6
180	127.3	128.0	128.7	129.4	130.1	130.8	131.5	132.2	132.9	133.6
190	134.4	135.1	135.8	136.5	137.2	137.9	138.6	139.3	140.0	140.7
200	141.4	142.1	142.8	143.5	144.2	145.0	145.7	146.4	147.1	147.8

Form for Computing the Numerator and Denominator.

Directions.	E	W	N	S	NE	SW	SE	NW
Observed values.	7	12	6	26	13	45	2	24
	$E-W$		$N-S$		$NE-SW$		$SE-NW$	
	$[\ -5\ ]$		$[\ -20\ ]$		$[-32]\times \cos 45^\circ$		$[-22]\times \cos 45^\circ$	
Numerator(n).	$[\ -5\ ]$ + $[\ -22.6\ ]$ + $[\ -15.6\ ]$ = $[-43.2]$							
Denominator(d).	$[\ -20\ ]$ + $[\ -22.6\ ]$ − $[\ -15.6\ ]$ = $[-27.0]$							

α is the angle between the mean wind direction and the meridian.

The signs of the numerator (n) and denominator (d) determine the quadrant in which α lies.

When n and d are positive, α lies between N and E: $\frac{+}{+} = NE.$

When n is positive and d negative, α lies between S and E: $\frac{+}{-} = SE.$

When n and d are negative, α lies between S and W: $\frac{-}{-} = SW.$

When n is negative and d positive, α lies between N and W: $\frac{-}{+} = NW.$

TABLE 41.

MEAN DIRECTION OF THE WIND BY LAMBERT'S FORMULA.

Values of the mean direction (α) or its complement ($90° - \alpha$).

$$\alpha = \tan^{-1} n/d$$

n or d.	DENOMINATOR OR NUMERATOR (d OR n). 10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
1	6°	4°	3°	2°	2°	2°	1°	1°	1°	1°	1°	1°	1°	1°	1°	1°	1°	1°	1°
2	11	8	6	5	4	3	3	3	2	2	2	2	2	2	1	1	1	1	1
3	17	11	9	7	6	5	4	4	3	3	3	3	2	2	2	2	2	2	2
4	22	15	11	9	8	7	6	5	5	4	4	4	3	3	3	3	3	2	2
5	27	18	14	11	9	8	7	6	6	5	5	4	4	4	4	3	3	3	3
6	31	22	17	13	11	10	9	8	7	6	6	5	5	5	4	4	4	4	3
7	35	25	19	16	13	11	10	9	8	7	7	6	6	5	5	5	4	4	4
8	39	28	22	18	15	13	11	10	9	8	8	7	7	6	6	5	5	5	5
9	42	31	24	20	17	14	13	11	10	9	9	8	7	7	6	6	6	5	5
10	45	34	27	22	18	16	14	13	11	10	9	9	8	8	7	7	6	6	6
11		36	29	24	20	17	15	14	12	11	10	10	9	8	8	7	7	7	6
12		39	31	26	22	19	17	15	13	12	11	10	10	9	9	8	8	7	7
13		41	33	27	23	20	18	16	15	13	12	11	11	10	9	9	8	8	7
14		43	35	29	25	22	19	17	16	14	13	12	11	11	10	9	9	8	8
15		45	37	31	27	23	21	18	17	15	14	13	12	11	11	10	9	9	9
16			39	33	28	25	22	20	18	16	15	14	13	12	11	11	10	10	9
17			40	34	30	26	23	21	19	17	16	15	14	13	12	11	11	10	10
18			42	36	31	27	24	22	20	18	17	15	14	13	13	12	11	11	10
19			44	37	32	28	25	23	21	19	18	16	15	14	13	13	12	11	11
20			45	39	34	30	27	24	22	20	18	17	16	15	14	13	13	12	11
21				40	35	31	28	25	23	21	19	18	17	16	15	14	13	12	12
22				41	36	32	29	26	24	22	20	19	17	16	15	15	14	13	12
23				43	37	33	30	27	25	23	21	19	18	17	16	15	14	14	13
24				44	39	34	31	28	26	24	22	20	19	18	17	16	15	14	13
25				45	40	36	32	29	27	24	23	21	20	18	17	16	16	15	14
26					41	37	33	30	27	25	23	22	20	19	18	17	16	15	15
27					42	38	34	31	28	26	24	22	21	20	19	18	17	16	15
28					43	39	35	32	29	27	25	23	22	20	19	18	17	16	16
29					44	40	36	33	30	28	26	24	23	21	20	19	18	17	16
30					45	41	37	34	31	29	27	25	23	22	21	19	18	18	17
31						42	38	35	32	29	27	25	24	22	21	20	19	18	17
32						42	39	35	33	30	28	26	25	23	22	21	20	19	18
33						43	40	36	33	31	29	27	25	24	22	21	20	19	18
34						44	40	37	34	32	30	28	26	24	23	22	21	20	19
35						45	41	38	35	32	30	28	27	25	24	22	21	20	19
36							42	39	36	33	31	29	27	26	24	23	22	21	20
37							43	39	37	34	32	30	28	26	25	24	22	21	20
38							44	40	37	35	32	30	28	27	25	24	23	22	21
39							44	41	38	35	33	31	29	27	26	25	23	22	21
40							45	42	39	36	34	32	30	28	27	25	24	23	22
41								42	39	37	34	32	30	29	27	26	24	23	22
42								43	40	37	35	33	31	29	28	26	25	24	23
43								44	41	38	36	33	32	30	28	27	26	24	23
44								44	41	39	36	34	32	30	29	27	26	25	24
45								45	42	39	37	35	33	31	29	28	27	25	24
46									43	40	37	35	33	32	30	28	27	26	25
47									43	41	38	36	34	32	30	29	28	26	25
48									44	41	39	36	34	33	31	29	28	27	26
49									44	42	39	37	35	33	31	30	29	27	26
50									45	42	40	38	36	34	32	30	29	28	27

MEAN DIRECTION OF THE WIND BY LAMBERT'S FORMULA.

Values of the mean direction (α) or its complement ($90° - \alpha$).

n or d.	DENOMINATOR OR NUMERATOR (d OR n).									
	105	110	115	120	125	130	135	140	145	150
1	1°	1°	0°	0°	0°	0°	0°	0°	0°	0°
2	1	1	1	1	1	1	1	1	1	1
3	2	2	1	1	1	1	1	1	1	1
4	2	2	2	2	2	2	2	2	2	2
5	3	3	2	2	2	2	2	2	2	2
6	3	3	3	3	3	3	3	2	2	2
7	4	4	3	3	3	3	3	3	3	3
8	4	4	4	4	4	4	3	3	3	3
9	4	4	4	4	4	4	4	4	4	3
10	5	5	5	5	5	4	4	4	4	4
11	6	6	5	5	5	5	5	4	4	4
12	7	6	6	6	5	5	5	5	5	5
13	7	7	6	6	6	6	6	5	5	5
14	8	7	7	7	6	6	6	6	6	5
15	8	8	7	7	7	7	6	6	6	6
16	9	8	8	8	7	7	7	7	6	6
17	9	9	8	8	8	7	7	7	7	6
18	10	9	9	9	8	8	8	7	7	7
19	10	10	9	9	9	8	8	8	7	7
20	11	10	10	9	9	9	8	8	8	8
21	11	11	10	10	10	9	9	9	8	8
22	12	11	11	10	10	10	9	9	9	8
23	12	12	11	11	10	10	10	9	9	9
24	13	12	12	11	11	10	10	10	9	9
25	13	13	12	12	11	11	10	10	10	9
26	14	13	13	12	12	11	11	11	10	10
27	14	14	13	13	12	12	11	11	11	10
28	15	14	14	13	13	12	12	11	11	11
29	15	15	14	14	13	13	12	12	11	11
30	16	15	15	14	13	13	13	12	12	11
31	16	16	15	14	14	13	13	12	12	12
32	17	16	16	15	14	14	13	13	12	12
33	17	17	16	15	15	14	14	13	13	12
34	18	17	16	16	15	15	14	14	13	13
35	18	18	17	16	16	15	15	14	14	13
36	19	18	17	17	16	15	15	14	14	13
37	19	19	18	17	16	16	15	15	14	14
38	20	19	18	18	17	16	16	15	15	14
39	20	20	19	18	17	17	16	16	15	15
40	21	20	19	18	18	17	17	16	15	15
41	21	20	20	19	18	18	17	16	16	15
42	22	21	20	19	19	18	17	17	16	16
43	22	21	21	20	19	18	18	17	17	16
44	23	22	21	20	19	19	18	17	17	16
45	23	22	21	21	20	19	18	18	17	17
46	24	23	22	21	20	19	19	18	18	17
47	24	23	22	21	21	20	19	19	18	17
48	25	24	23	22	21	20	20	19	18	18
49	25	24	23	22	21	21	20	19	19	18
50	25	24	23	23	22	21	20	20	19	18

MEAN DIRECTION OF THE WIND BY LAMBERT'S FORMULA.

Values of the mean direction (α) or its complement ($90° - \alpha$).

n or d.	DENOMINATOR OR NUMERATOR (d OR n).									
	155	160	165	170	175	180	185	190	195	200
1	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°
2	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1
5	2	2	2	2	2	2	2	2	1	1
6	2	2	2	2	2	2	2	2	2	2
7	3	3	2	2	2	2	2	2	2	2
8	3	3	3	3	3	3	2	2	2	2
9	3	3	3	3	3	3	3	3	3	3
10	4	4	3	3	3	3	3	3	3	3
11	4	4	4	4	4	3	3	3	3	3
12	4	4	4	4	4	4	4	4	4	3
13	5	5	5	4	4	4	4	4	4	4
14	5	5	5	5	5	4	4	4	4	4
15	6	5	5	5	5	5	5	5	4	4
16	6	6	6	5	5	5	5	5	5	5
17	6	6	6	6	6	5	5	5	5	5
18	7	7	6	6	6	6	6	6	5	5
19	7	7	7	6	6	6	6	6	6	5
20	7	7	7	7	7	6	6	6	6	6
21	8	7	7	7	7	7	6	6	6	6
22	8	8	8	7	7	7	7	7	6	6
23	8	8	8	8	7	7	7	7	7	7
24	9	9	8	8	8	8	7	7	7	7
25	9	9	9	8	8	8	8	7	7	7
26	10	9	9	9	8	8	8	8	8	7
27	10	10	9	9	9	9	8	8	8	8
28	10	10	10	9	9	9	9	8	8	8
29	11	10	10	10	9	9	9	9	8	8
30	11	11	10	10	10	9	9	9	9	9
31	11	11	11	10	10	10	10	9	9	9
32	12	11	11	11	10	10	10	10	9	9
33	12	12	11	11	11	10	10	10	10	9
34	12	12	12	11	11	11	10	10	10	10
35	13	12	12	12	11	11	11	10	10	10
36	13	13	12	12	12	11	11	11	10	10
37	13	13	13	12	12	12	11	11	11	10
38	14	13	13	13	12	12	12	11	11	11
39	14	14	13	13	13	12	12	12	11	11
40	14	14	14	13	13	13	12	12	12	11
41	15	14	14	14	13	13	12	12	12	12
42	15	15	14	14	13	13	13	12	12	12
43	16	15	15	14	14	13	13	13	12	12
44	16	15	15	15	14	14	13	13	13	12
45	16	16	15	15	14	14	14	13	13	13
46	17	16	16	15	15	14	14	14	13	13
47	17	16	16	15	15	15	14	14	14	13
48	17	17	16	16	15	15	15	14	14	13
49	18	17	17	16	16	15	15	14	14	14
50	18	17	17	16	16	16	15	15	14	14

MEAN DIRECTION OF THE WIND BY LAMBERT'S FORMULA.

Values of the mean direction (α) or its complement ($90° - \alpha$).

$$\alpha = tan^{-1} \frac{n}{d}.$$

n or d.	DENOMINATOR OR NUMERATOR (d OR n).															
	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130
50	42°	40°	38°	36°	34°	32°	30°	29°	28°	27°	25°	24°	23°	23°	22°	21°
52	43	41	39	37	35	33	31	30	29	27	26	25	24	23	23	22
54	44	42	40	38	36	34	32	31	30	28	27	26	25	24	23	22
56		43	41	39	37	35	33	32	31	29	28	27	26	25	24	23
58		44	42	40	38	36	34	33	31	30	29	28	27	26	25	24
60		45	43	41	39	37	35	34	32	31	30	29	28	27	26	25
62			44	42	40	38	36	35	33	32	31	29	28	27	26	25
64			45	42	40	39	37	35	34	33	31	30	29	28	27	26
66				43	41	40	38	36	35	33	32	31	30	29	28	27
68				44	42	40	39	37	36	34	33	32	31	30	29	28
70				45	43	41	39	38	36	35	34	32	31	30	29	28
72					44	42	40	39	37	36	34	33	32	31	30	29
74					45	43	41	39	38	37	35	34	33	32	31	30
76						44	42	40	39	37	36	35	33	32	31	30
78						44	43	41	39	38	37	35	34	33	32	31
80						45	43	42	40	39	37	36	35	34	33	32
82							44	42	41	39	38	37	35	34	33	32
84							45	43	41	40	39	37	36	35	34	33
86								44	42	41	39	38	37	36	35	33
88								44	43	41	40	39	37	36	35	34
90								45	43	42	41	39	38	37	36	35
92									44	43	41	40	39	37	36	35
94									45	43	42	41	39	38	37	36
96										44	42	41	40	39	38	36
98										44	43	42	40	39	38	37
100										45	44	42	41	40	39	38
102											44	43	42	40	39	38
104											45	43	42	41	40	39
106												44	43	41	40	39
108												44	43	42	41	40
110												45	44	43	41	40
112													44	43	42	41
114													45	44	42	41
116														44	43	42
118														45	43	42
120														45	44	43
122															44	43
124															45	44
126																44
128																45
130																45

MEAN DIRECTION OF THE WIND BY LAMBERT'S FORMULA.

Values of the mean direction (α) or its complement ($90° - \alpha$).

n or d.	DENOMINATOR OR NUMERATOR (d OR n).														
	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200
50	21°	20°	20°	19°	18°	18°	17°	17°	16°	16°	16°	15°	15°	14°	14°
52	22	21	20	20	19	19	18	17	17	17	16	16	15	15	15
54	22	22	21	20	20	19	19	18	18	17	17	16	16	15	15
56	23	23	22	21	20	20	19	19	18	18	17	17	16	16	16
58	24	23	23	22	21	21	20	19	19	18	18	17	17	17	16
60	25	24	23	22	22	21	21	20	19	19	18	18	18	17	17
62	25	25	24	23	22	22	21	21	20	20	19	19	18	18	17
64	26	25	25	24	23	22	22	21	21	20	20	19	19	18	18
66	27	26	25	24	24	23	22	22	21	21	20	20	19	19	18
68	28	27	26	25	24	24	23	22	22	21	21	20	20	19	19
70	28	27	27	26	25	24	24	23	22	22	21	21	20	20	19
72	29	28	27	26	26	25	24	24	23	22	22	21	21	20	20
74	30	29	28	27	26	26	25	24	24	23	22	22	21	21	20
76	30	29	28	28	27	26	25	25	24	23	23	22	22	21	21
78	31	30	29	28	27	27	26	25	25	24	23	23	22	22	21
80	32	31	30	29	28	27	27	26	25	25	24	23	23	22	22
82	32	31	30	29	29	28	27	26	26	25	24	24	23	23	22
84	33	32	31	30	29	28	28	27	26	26	25	24	24	23	23
86	33	32	32	31	30	29	28	28	27	26	26	25	24	24	23
88	34	33	32	31	30	30	29	28	27	27	26	25	25	24	24
90	35	34	33	32	31	30	29	29	28	27	27	26	25	25	24
92	35	34	33	32	32	31	30	29	28	28	27	26	26	25	25
94	36	35	34	33	32	31	30	30	29	28	28	27	26	26	25
96	36	35	34	34	33	32	31	30	29	29	28	27	27	26	26
98	37	36	35	34	33	32	31	31	30	29	29	28	27	27	26
100	38	37	36	35	34	33	32	31	30	30	29	28	28	27	27
102	38	37	36	35	34	33	33	32	31	30	30	29	28	28	27
104	39	38	37	36	35	34	33	32	31	31	30	29	29	28	27
106	39	38	37	36	35	34	34	33	32	31	30	30	29	29	28
108	40	39	38	37	36	35	34	33	32	32	31	30	30	29	28
110	40	39	38	37	36	35	35	34	33	32	31	31	30	29	29
112	41	40	39	38	37	36	35	34	33	33	32	31	31	30	29
114	41	40	39	38	37	36	35	35	34	33	32	32	31	30	30
116	42	41	40	39	38	37	36	35	34	34	33	32	31	31	30
118	42	41	40	39	38	37	36	36	35	34	33	33	32	31	31
120	43	42	41	40	39	38	37	36	35	34	34	33	32	32	31
122	43	42	41	40	39	38	37	36	36	35	34	33	33	32	31
124	44	43	42	41	40	39	38	37	36	35	35	34	33	32	32
126	44	43	42	41	40	39	38	37	37	36	35	34	34	33	32
128	45	43	42	41	40	40	39	38	37	36	35	35	34	33	33
130	45	44	43	42	41	40	39	38	37	37	36	35	34	34	33
132		44	43	42	41	40	40	39	38	37	36	35	35	34	33
134		45	44	43	42	41	40	39	38	37	37	36	35	34	34
136			44	43	42	41	40	39	39	38	37	36	36	35	34
138			45	44	43	42	41	40	39	38	37	37	36	35	35
140			45	44	43	42	41	40	39	39	38	37	36	36	35
142				44	43	42	42	41	40	39	38	38	37	36	35
144				45	44	43	42	41	40	39	39	38	37	36	36
146					44	43	42	42	41	40	39	38	38	37	36
148					45	44	43	42	41	40	39	39	38	37	37
150					45	44	43	42	41	41	40	39	38	38	37

TABLE 42.

RADIUS OF CRITICAL CURVATURE AND VELOCITIES OF GRADIENT WINDS FOR FRICTIONLESS MOTION IN *HIGHS* AND *LOWS*.

ENGLISH MEASURES.

R_c = radius of critical curvature in miles. V_c High = maximum speed in miles per hour on isobar of critical curvature. V_s = speed along straight line isobars = 0.5 V_c. V Low = speed in Low along isobar of curvature R_c. V Low = 0.4142 V_c.

The table is computed for a density of the air, ρ = .0010, which represents the conditions in the free air at an elevation of, roughly, one mile. Values for any other density can be readily found by dividing each or any of the tabulated values by the ratio of the densities, as, for example, for surface conditions divide by $1.2 = \frac{.0010}{.0012}$ and so on.

Latitude: ϕ		d (miles)										
		100	**125**	**150**	**175**	**200**	**250**	**300**	**400**	**500**	**600**	**800**
10°	R_c	8160	6530	5440	4660	4080	3260	2720	2040	1630	1360	1020
	V_c High	372	298	248	212	186	149	124	93.0	74.4	62.0	46.5
	V_s	186	149	124	106	93.0	74.4	62.0	46.5	37.2	31.0	23.2
	V Low	154	123	103	88.0	77.0	61.6	51.3	38.5	30.8	25.7	19.2
20	R_c	2100	1680	1400	1200	1050	841	701	526	420	350	263
	V_c High	189	151	126	108	94.4	75.5	62.9	47.2	37.8	31.5	23.6
	V_s	94.4	75.5	62.9	54.0	47.2	37.8	31.4	23.6	18.9	15.8	11.8
	V Low	78.2	62.5	52.1	44.7	39.1	31.3	26.1	19.6	15.7	13.0	9.8
25	R_c	1380	1100	918	787	688	551	459	344	275	230	172
	V_c High	153	122	102	87.3	76.4	61.1	50.9	38.2	30.6	25.5	19.1
	V_s	76.4	61.1	50.9	43.6	38.2	30.6	25.4	19.1	15.3	12.8	9.5
	V Low	63.3	50.6	42.2	36.2	31.6	25.3	21.1	15.8	12.7	10.6	7.9
30	R_c	984	787	656	562	492	393	328	246	197	164	123
	V_c High	129	103	86.1	73.8	64.5	51.6	43.0	32.3	25.8	21.5	16.1
	V_s	64.5	51.6	43.0	36.9	32.2	25.8	21.5	16.2	12.9	10.8	8.1
	V Low	53.5	42.8	35.7	30.6	26.7	21.4	17.8	13.4	10.7	8.9	6.7
35	R_c	747	598	498	427	374	299	249	187	150	125	93.4
	V_c High	112	90.0	75.0	64.3	56.3	45.0	37.5	28.1	22.5	18.8	14.1
	V_s	56.3	45.0	37.5	32.2	28.2	22.5	18.8	14.0	11.2	9.4	7.0
	V Low	46.6	37.3	31.1	26.6	23.3	18.6	15.5	11.6	9.3	7.8	5.8
40	R_c	595	476	397	340	298	238	198	149	119	99.2	74.4
	V_c High	100	80.3	66.9	57.4	50.2	40.2	33.5	25.1	20.1	16.7	12.6
	V_s	50.2	40.2	33.4	28.7	25.1	20.1	16.8	12.6	10.0	8.4	6.3
	V Low	41.6	33.3	27.7	23.8	20.8	16.7	13.9	10.4	8.3	6.9	5.2
45	R_c	492	393	328	281	246	197	164	123	98.4	82.0	61.5
	V_c High	91.3	73.0	60.9	52.2	45.6	36.5	30.4	22.8	18.3	15.2	11.4
	V_s	45.6	36.5	30.4	26.1	22.8	18.2	15.2	11.4	9.2	7.6	5.7
	V Low	37.8	30.2	25.2	21.6	18.9	15.1	12.6	9.4	7.6	6.3	4.7
50	R_c	419	335	279	240	210	168	140	105	83.8	69.9	52.4
	V_c High	84.3	67.4	56.2	48.2	42.1	33.7	28.1	21.1	16.9	14.0	10.5
	V_s	42.1	33.7	28.1	24.1	21.0	16.8	14.0	10.6	8.4	7.0	5.3
	V Low	34.9	27.9	23.3	20.0	17.4	14.0	11.6	8.7	7.0	5.8	4.4
55	R_c	366	293	244	209	183	147	122	91.6	73.3	61.1	45.8
	V_c High	78.8	63.0	52.5	45.0	39.4	31.5	26.3	19.7	15.8	13.1	9.8
	V_s	39.4	31.5	26.2	22.5	19.7	15.8	13.2	9.8	7.9	6.6	4.9
	V Low	32.6	26.1	21.7	18.6	16.3	13.0	10.9	8.2	6.5	5.4	4.1
60	R_c	328	262	219	187	164	131	109	82.0	65.6	54.7	41.0
	V_c High	74.5	59.6	49.7	42.6	37.3	29.8	24.8	18.6	14.9	12.4	9.3
	V_s	37.3	29.8	24.8	21.3	18.6	14.9	12.4	9.3	7.4	6.2	4.7
	V Low	30.9	24.7	20.6	17.6	15.5	12.3	10.3	7.7	6.2	5.1	3.9
65	R_c	299	240	200	171	150	120	99.8	74.8	59.9	49.9	37.4
	V_c High	71.2	57.0	47.5	40.7	35.6	28.5	23.7	17.8	14.2	11.9	8.9
	V_s	35.6	28.5	23.8	20.4	17.8	14.2	11.8	8.9	7.1	6.0	4.4
	V Low	29.5	23.6	19.7	16.9	14.7	11.8	9.8	7.4	5.9	4.9	3.7

Table 42.

RADIUS OF CRITICAL CURVATURE AND VELOCITIES OF GRADIENT WINDS FOR FRICTIONLESS MOTION IN *HIGHS* AND *LOWS*.

English Measures.

Latitude: ϕ		d (miles)										
		100	125	150	175	200	250	300	400	500	600	800
70°	R_c	278	223	186	159	139	111	92.8	69.6	55.7	46.4	34.8
	V_c High	68.7	55.0	45.8	39.3	34.3	27.5	22.9	17.2	13.7	11.4	8.6
	V_s	34.3	27.5	22.9	19.6	17.2	13.8	11.4	8.6	6.8	5.7	4.3
	V Low	28.5	22.8	19.0	16.3	14.2	11.4	9.5	7.1	5.7	4.7	3.6
75	R_c	264	211	176	151	132	105	87.9	65.9	52.7	43.9	33.0
	V_c High	66.8	53.5	44.6	38.2	33.4	26.7	22.3	16.7	13.4	11.1	8.4
	V_s	33.4	26.8	22.3	19.1	16.7	13.4	11.2	8.4	6.7	5.6	4.2
	V Low	27.7	22.2	18.5	15.8	13.8	11.1	9.2	6.9	5.6	4.6	3.5
80	R_c	254	203	169	145	127	101	84.5	63.4	50.7	42.3	31.7
	V_c High	65.5	52.4	43.7	37.5	32.8	26.2	21.8	16.4	13.1	10.9	8.2
	V_s	32.8	26.2	21.8	18.8	16.4	13.1	10.9	8.2	6.6	5.4	4.1
	V Low	27.1	21.7	18.1	15.5	13.6	10.9	9.0	6.8	5.4	4.5	3.4
85	R_c	248	198	165	142	124	99.1	82.6	62.0	49.6	41.3	31.0
	V_c High	64.8	51.8	43.2	37.0	32.4	25.9	21.6	16.2	13.0	10.8	8.1
	V_s	32.4	25.9	21.6	18.5	16.2	13.0	10.8	8.1	6.5	5.4	4.0
	V Low	26.8	21.5	17.9	15.3	13.4	10.7	8.9	6.7	5.4	4.5	3.4
90	R_c	246	197	164	140	123	98.4	82.0	61.5	49.2	41.0	30.7
	V_c High	64.6	51.6	43.0	36.9	32.3	25.8	21.5	16.1	12.9	10.8	8.1
	V_s	32.3	25.8	21.5	18.4	16.2	12.9	10.8	8.0	6.4	5.4	4.0
	V Low	26.8	21.4	17.8	15.3	13.4	10.7	8.9	6.7	5.3	4.5	3.3

Table 43.

RADIUS OF CRITICAL CURVATURE AND VELOCITIES OF GRADIENT WINDS FOR FRICTIONLESS MOTION IN *HIGHS* AND *LOWS*.

Metric Measures.

R_c = radius of critical curvature in kilometers. V_c High = maximum speed in meters per second on isobar of critical curvature. V_s = speed along straight line isobars = 0.5 V_c. V Low = speed in Low along isobar of curvature R_c. V Low = 0.4142 V_c.

The remarks in heading of Table 42 relative to the density of the air apply equally to Table 43.

Latitude: ϕ		d (kilometers)										
		100	125	150	175	200	250	300	400	500	600	800
10°	R_c	8330	6660	5550	4760	4160	3330	2780	2080	1670	1390	1040
	V_c High	105	84.3	70.2	60.2	52.7	42.1	35.1	26.3	21.1	17.6	13.2
	V_s	52.7	42.2	35.1	30.1	26.4	21.0	17.6	13.2	10.6	8.8	6.6
	V Low	43.5	34.9	29.1	24.9	21.8	17.4	14.5	10.9	8.7	7.3	5.5
20	R_c	2140	1710	1430	1220	1070	857	714	536	429	357	268
	V_c High	53.5	42.8	35.6	30.5	26.7	21.4	17.8	13.4	10.7	8.9	6.7
	V_s	26.7	21.4	17.8	15.2	13.4	10.7	8.9	6.7	5.4	4.4	3.4
	V Low	22.2	17.7	14.7	12.6	11.1	8.9	7.4	5.6	4.4	3.7	2.8
25	R_c	1400	1120	936	802	702	562	468	351	281	234	175
	V_c High	43.3	34.6	28.8	24.7	21.6	17.3	14.4	10.8	8.7	7.2	5.4
	V_s	21.6	17.3	14.4	12.4	10.8	8.6	7.2	5.4	4.4	3.6	2.7
	V Low	17.9	14.3	11.9	10.2	8.9	7.2	6.0	4.5	3.6	3.0	2.2
30	R_c	1003	802	669	573	501	401	334	251	201	167	125
	V_c High	36.6	29.3	24.4	20.9	18.3	14.6	12.2	9.1	7.3	6.1	4.6
	V_s	18.3	14.6	12.2	10.4	9.2	7.3	6.1	4.6	3.6	3.0	2.3
	V Low	15.2	12.1	10.1	8.7	7.6	6.0	5.1	3.8	3.0	2.5	1.9

RADIUS OF CRITICAL CURVATURE AND VELOCITIES OF GRADIENT WINDS FOR FRICTIONLESS MOTION IN *HIGHS* AND *LOWS*.

METRIC MEASURES.

Latitude: ϕ		d (kilometers)										
		100	125	150	175	200	250	300	400	500	600	800
35°	R_c	762	610	508	435	381	305	254	191	152	127	95.3
	V_c High	31.9	25.5	21.3	18.2	15.9	12.8	10.6	8.0	6.4	5.3	4.0
	V_s	15.9	12.8	10.6	9.1	8.0	6.4	5.3	4.0	3.2	2.6	2.0
	V Low	13.2	10.6	8.8	7.5	6.6	5.3	4.4	3.3	2.7	2.2	1.7
40	R_c	607	485	405	347	303	243	202	152	121	101	75.8
	V_c High	28.4	22.8	19.0	16.3	14.2	11.4	9.5	7.1	5.7	4.7	3.6
	V_s	14.2	11.4	9.5	8.2	7.1	5.7	4.8	3.6	2.8	2.4	1.8
	V Low	11.8	9.4	7.9	6.8	5.9	4.7	3.9	2.9	2.4	1.9	1.5
45	R_c	501	401	334	287	251	201	167	125	100	83.6	62.7
	V_c High	25.9	20.7	17.2	14.8	12.9	10.3	8.6	6.5	5.2	4.3	3.2
	V_s	12.9	10.4	8.6	7.4	6.4	5.2	4.3	3.2	2.6	2.2	1.6
	V Low	10.7	8.6	7.1	6.1	5.3	4.3	3.6	2.7	2.2	1.8	1.3
50	R_c	427	342	285	244	214	171	142	107	85.5	71.2	53.4
	V_c High	23.9	19.1	15.9	13.6	11.9	9.5	8.0	6.0	4.8	4.0	3.0
	V_s	11.9	9.6	8.0	6.8	6.0	4.8	4.0	3.0	2.4	2.0	1.5
	V Low	9.9	7.9	6.6	5.6	4.9	3.9	3.3	2.5	2.0	1.7	1.2
55	R_c	374	299	249	213	187	149	125	93.4	74.7	62.3	46.7
	V_c High	22.3	17.9	14.9	12.8	11.2	8.9	7.4	5.6	4.5	3.7	2.8
	V_s	11.2	9.0	7.4	6.4	5.6	4.4	3.7	2.8	2.2	1.8	1.4
	V Low	9.2	7.4	6.2	5.3	4.6	3.7	3.1	2.3	1.9	1.5	1.2
60	R_c	334	267	223	191	167	134	111	83.6	66.9	55.7	41.8
	V_c High	21.1	16.9	14.1	12.1	10.6	8.4	7.0	5.3	4.2	3.5	2.6
	V_s	10.6	8.4	7.0	6.0	5.3	4.2	3.5	2.6	2.1	1.8	1.3
	V Low	8.7	7.0	5.8	5.0	4.4	3.5	2.9	2.2	1.7	1.4	1.1
65	R_c	305	244	204	174	153	122	102	76.3	61.0	50.9	38.2
	V_c High	20.2	16.1	13.4	11.5	10.1	8.1	6.7	5.0	4.0	3.4	2.5
	V_s	10.1	8.0	6.7	5.8	5.0	4.0	3.4	2.5	2.0	1.7	1.2
	V Low	8.4	6.7	5.6	4.8	4.2	3.4	2.8	2.1	1.7	1.4	1.0
70	R_c	284	227	189	162	142	114	94.6	71.0	56.8	47.3	35.5
	V_c High	19.5	15.6	13.0	11.1	9.7	7.8	6.5	4.9	3.9	3.2	2.4
	V_s	9.7	7.8	6.5	5.6	4.8	3.9	3.2	2.4	2.0	1.6	1.2
	V Low	8.1	6.5	5.4	4.6	4.0	3.2	2.7	2.0	1.6	1.3	1.0
75	R_c	269	215	179	154	134	107	89.6	67.2	53.7	44.8	33.6
	V_c High	18.9	15.1	12.6	10.8	9.5	7.6	6.3	4.7	3.8	3.2	2.4
	V_s	9.5	7.6	6.3	5.4	4.8	3.8	3.2	2.4	1.9	1.6	1.2
	V Low	7.8	6.3	5.2	4.5	3.9	3.1	2.6	1.9	1.6	1.3	1.0
80	R_c	259	207	172	148	129	103	86.2	64.6	51.7	43.1	32.3
	V_c High	18.6	14.9	12.4	10.6	9.3	7.4	6.2	4.6	3.7	3.1	2.3
	V_s	9.3	7.4	6.2	5.3	4.6	3.7	3.1	2.3	1.8	1.6	1.2
	V Low	7.7	6.2	5.1	4.4	3.9	3.1	2.6	1.9	1.5	1.3	1.0
85	R_c	253	202	168	144	126	101	84.2	63.2	50.5	42.1	31.6
	V_c High	18.4	14.7	12.2	10.5	9.2	7.3	6.1	4.6	3.7	3.1	2.3
	V_s	9.2	7.4	6.1	5.2	4.6	3.6	3.0	2.3	1.8	1.6	1.2
	V Low	7.6	6.1	5.1	4.3	3.8	3.0	2.5	1.9	1.5	1.3	1.0
90	R_c	251	201	167	143	125	100	83.6	62.7	50.1	41.8	31.3
	V_c High	18.3	14.6	12.2	10.4	9.1	7.3	6.1	4.6	3.7	3.0	2.3
	V_s	9.1	7.3	6.1	5.2	4.6	3.6	3.0	2.3	1.8	1.5	1.2
	V Low	7.6	6.0	5.1	4.3	3.8	3.0	2.5	1.9	1.5	1.2	1.0

REDUCTION OF TEMPERATURE TO SEA LEVEL.

REDUCTION OF TEMPERATURE TO SEA LEVEL.

ENGLISH MEASURES.

Rate of decrease of temperature. 1°F. for every	DIFFERENCES BETWEEN THE TEMPERATURE AT ANY ALTITUDE AND AT SEA LEVEL.													
	ALTITUDE IN FEET.													
	100	200	300	400	500	600	700	800	900	1000	2000	3000	4000	5000
Feet.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.
200	0°.50	1°.00	1°.50	2°.00	2°.50	3°.00	3°.50	4°.00	4°.50	5°.00	10°.00	15°.00	20°.00	25°.00
205	0.49	0.98	1.46	1.95	2.44	2.93	3.41	3.90	4.39	4.88	9.76	14.63	19.51	24.39
210	0.48	0.95	1.43	1.90	2.38	2.86	3.33	3.81	4.29	4.76	9.52	14.29	19.05	23.81
215	0.47	0.93	1.40	1.86	2.33	2.79	3.26	3.72	4.19	4.65	9.30	13.95	18.60	23.26
220	0.45	0.91	1.36	1.82	2.27	2.73	3.18	3.64	4.09	4.55	9.09	13.63	18.18	22.72
230	0.43	0.87	1.30	1.74	2.17	2.61	3.04	3.48	3.91	4.35	8.70	13.04	17.39	21.74
240	0.42	0.83	1.25	1.67	2.08	2.50	2.92	3.33	3.75	4.17	8.33	12.50	16.67	20.83
250	0.40	0.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00	8.00	12.00	16.00	20.00
260	0.38	0.77	1.15	1.54	1.92	2.31	2.69	3.08	3.46	3.85	7.69	11.54	15.38	19.23
270	0.37	0.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	7.41	11.11	14.81	18.52
280	0.36	0.71	1.07	1.43	1.79	2.14	2.50	2.86	3.21	3.57	7.14	10.71	14.29	17.86
290	0.34	0.69	1.03	1.38	1.73	2.07	2.41	2.76	3.10	3.45	6.90	10.34	13.79	17.24
300	0.33	0.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	6.67	10.00	13.33	16.67
310	0.32	0.65	0.97	1.29	1.61	1.94	2.26	2.58	2.90	3.23	6.45	9.68	12.90	16.13
320	0.31	0.62	0.94	1.25	1.56	1.87	2.19	2.50	2.81	3.12	6.25	9.37	12.50	15.62
340	0.29	0.59	0.88	1.18	1.47	1.76	2.06	2.35	2.65	2.94	5.88	8.82	11.76	14.71
360	0.28	0.56	0.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78	5.56	8.33	11.11	13.89
380	0.26	0.53	0.79	1.05	1.32	1.58	1.84	2.10	2.37	2.63	5.26	7.89	10.53	13.16
400	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	5.00	7.50	10.00	12.50
420	0.24	0.48	0.71	0.95	1.19	1.43	1.67	1.90	2.14	2.38	4.76	7.14	9.52	11.90
440	0.23	0.45	0.68	0.91	1.14	1.36	1.59	1.82	2.05	2.27	4.55	6.82	9.09	11.36
460	0.22	0.43	0.65	0.87	1.09	1.30	1.52	1.74	1.96	2.17	4.35	6.52	8.70	10.87
480	0.21	0.42	0.62	0.83	1.04	1.25	1.46	1.67	1.87	2.08	4.17	6.25	8.33	10.42
500	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00	4.00	6.00	8.00	10.00
520	0.19	0.38	0.58	0.77	0.96	1.15	1.35	1.54	1.73	1.92	3.85	5.77	7.69	9.62
540	0.19	0.37	0.56	0.74	0.93	1.11	1.30	1.48	1.67	1.85	3.70	5.56	7.41	9.26
560	0.18	0.36	0.54	0.71	0.89	1.07	1.25	1.43	1.61	1.79	3.57	5.36	7.14	8.93
580	0.17	0.34	0.52	0.69	0.86	1.03	1.21	1.38	1.55	1.72	3.45	5.17	6.90	8.62
600	0.17	0.33	0.50	0.67	0.83	1.00	1.17	1.33	1.50	1.67	3.33	5.00	6.67	8.33
620	0.16	0.32	0.48	0.65	0.81	0.97	1.13	1.29	1.45	1.61	3.23	4.84	6.45	8.06
650	0.15	0.31	0.46	0.62	0.77	0.92	1.08	1.23	1.38	1.54	3.08	4.62	6.15	7.69
700	0.14	0.29	0.43	0.57	0.71	0.86	1.00	1.14	1.29	1.43	2.86	4.29	5.71	7.14
750	0.13	0.27	0.40	0.53	0.67	0.80	0.93	1.07	1.20	1.33	2.67	4.00	5.33	6.67
800	0.12	0.25	0.37	0.50	0.62	0.75	0.87	1.00	1.12	1.25	2.50	3.75	5.00	6.25
850	0.12	0.24	0.35	0.47	0.59	0.71	0.82	0.94	1.06	1.18	2.35	3.53	4.71	5.88
900	0.11	0.22	0.33	0.44	0.56	0.67	0.78	0.89	1.00	1.11	2.22	3.33	4.44	5.56

Tabular values are to be added to the observed temperature to obtain the temperature at sea level.

REDUCTION OF TEMPERATURE TO SEA LEVEL.

METRIC MEASURES.

Rate of decrease of temperature. 1°C. for every	DIFFERENCES BETWEEN THE TEMPERATURE AT ANY ALTITUDE AND AT SEA LEVEL. ALTITUDE IN METERS.											
	100	200	300	400	500	600	700	800	900	1000	2000	3000
m.	C.	C.	C.	C.	C.	C.	C.	C.	C.	C.	C.	C.
100	1.°00	2.°00	3.°00	4.°00	5.°00	6.°00	7.°00	8.°00	9.°00	10.°00	20.°00	30.°00
102	0.98	1.96	2.94	3.92	4.90	5.88	6.86	7.84	8.82	9.80	19.61	29.41
104	0.96	1.92	2.88	3.85	4.81	5.77	6.73	7.69	8.65	9.62	19.23	28.85
106	0.94	1.89	2.83	3.77	4.72	5.66	6.60	7.55	8.49	9.43	18.87	28.30
108	0.93	1.85	2.78	3.70	4.63	5.56	6.48	7.41	8.33	9.26	18.52	27.78
110	0.91	1.82	2.73	3.64	4.55	5.45	6.36	7.27	8.18	9.09	18.18	27.27
115	0.87	1.74	2.61	3.48	4.35	5.22	6.09	6.96	7.83	8.70	17.39	26.09
120	0.83	1.67	2.50	3.33	4.17	5.00	5.83	6.67	7.50	8.33	16.67	25.00
125	0.80	1.60	2.40	3.20	4.00	4.80	5.60	6.40	7.20	8.00	16.00	24.00
130	0.77	1.54	2.31	3.08	3.85	4.62	5.38	6.15	6.92	7.69	15.38	23.08
135	0.74	1.48	2.22	2.96	3.70	4.44	5.19	5.93	6.66	7.41	14.81	22.22
140	0.71	1.43	2.14	2.86	3.57	4.29	5.00	5.71	6.43	7.14	14.29	21.43
145	0.69	1.38	2.07	2.76	3.45	4.14	4.83	5.52	6.21	6.90	13.79	20.69
150	0.67	1.33	2.00	2.67	3.33	4.00	4.67	5.33	6.00	6.67	13.33	20.00
155	0.65	1.29	1.94	2.58	3.23	3.87	4.52	5.16	5.81	6.45	12.90	19.35
160	0.62	1.25	1.87	2.50	3.12	3.75	4.37	5.00	5.62	6.25	12.50	18.75
170	0.59	1.18	1.76	2.35	2.94	3.53	4.12	4.70	5.29	5.88	11.76	17.65
180	0.56	1.11	1.67	2.22	2.78	3.33	3.89	4.44	5.00	5.56	11.11	16.67
190	0.53	1.05	1.58	2.10	2.63	3.16	3.68	4.21	4.74	5.26	10.53	15.79
200	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	10.00	15.00
210	0.48	0.95	1.43	1.90	2.38	2.86	3.33	3.81	4.29	4.76	9.52	14.29
220	0.45	0.91	1.36	1.82	2.27	2.73	3.18	3.64	4.09	4.55	9.09	13.64
230	0.43	0.87	1.30	1.74	2.17	2.61	3.04	3.48	3.91	4.35	8.70	13.04
240	0.42	0.83	1.25	1.67	2.08	2.50	2.92	3.33	3.75	4.17	8.33	12.50
250	0.40	0.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00	8.00	12.00
260	0.38	0.77	1.15	1.54	1.92	2.31	2.69	3.08	3.46	3.85	7.69	11.54
270	0.37	0.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	7.41	11.11
280	0.36	0.71	1.07	1.43	1.79	2.14	2.50	2.86	3.21	3.57	7.14	10.71
290	0.34	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	6.90	10.34
300	0.33	0.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	6.67	10.00
320	0.31	0.62	0.94	1.25	1.56	1.87	2.19	2.50	2.81	3.12	6.25	9.37
340	0.29	0.59	0.88	1.18	1.47	1.76	2.06	2.35	2.65	2.94	5.88	8.82
360	0.28	0.56	0.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78	5.56	8.33
380	0.26	0.53	0.79	1.05	1.32	1.58	1.84	2.10	2.37	2.63	5.26	7.89
400	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	5.00	7.50
420	0.24	0.48	0.71	0.95	1.19	1.43	1.67	1.90	2.14	2.38	4.76	7.14
440	0.23	0.45	0.68	0.91	1.14	1.36	1.59	1.82	2.05	2.27	4.55	6.82
460	0.22	0.43	0.65	0.87	1.09	1.30	1.52	1.74	1.96	2.17	4.35	6.52
480	0.21	0.42	0.62	0.83	1.04	1.25	1.46	1.67	1.87	2.08	4.17	6.25
500	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00	4.00	6.00

Tabular values are to be added to the observed temperature to obtain the temperature at sea level.

BAROMETRICAL TABLES.

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
0°.0	+0.050	+0.051	+0.052	+0.053	+0.055	+0.056	+0.057	+0.059	+0.060	+0.061
+0.5	+0.049	+0.050	+0.051	+0.053	+0.054	+0.055	+0.056	+0.058	+0.059	+0.060
1.0	.048	.049	.050	.052	.053	.054	.055	.057	.058	.059
1.5	.047	.048	.049	.051	.052	.053	.054	.056	.057	.058
2.0	.046	.047	.049	.050	.051	.052	.053	.055	.056	.057
2.5	.045	.046	.048	.049	.050	.051	.052	.054	.055	.056
3.0	+0.044	+0.046	+0.047	+0.048	+0.049	+0.050	+0.051	+0.053	+0.054	+0.055
3.5	.043	.045	.046	.047	.048	.049	.050	.051	.053	.054
4.0	.043	.044	.045	.046	.047	.048	.049	.050	.052	.053
4.5	.042	.043	.044	.045	.046	.047	.048	.049	.051	.052
5.0	.041	.042	.043	.044	.045	.046	.047	.048	.049	.051
5.5	+0.040	+0.041	+0.042	+0.043	+0.044	+0.045	+0.046	+0.047	+0.048	+0.049
6.0	.039	.040	.041	.042	.043	.044	.045	.046	.047	.048
6.5	.038	.039	.040	.041	.042	.043	.044	.045	.046	.047
7.0	.037	.038	.039	.040	.041	.042	.043	.044	.045	.046
7.5	.037	.038	.038	.039	.040	.041	.042	.043	.044	.045
8.0	+0.036	+0.037	+0.038	+0.038	+0.039	+0.040	+0.041	+0.042	+0.043	+0.044
8.5	.035	.036	.037	.038	.038	.039	.040	.041	.042	.043
9.0	.034	.035	.036	.037	.038	.038	.039	.040	.041	.042
9.5	.033	.034	.035	.036	.037	.037	.038	.039	.040	.041
10.0	.032	.033	.034	.035	.036	.036	.037	.038	.039	.040
10.5	+0.031	+0.032	+0.033	+0.034	+0.035	+0.035	+0.036	+0.037	+0.038	+0.039
11.0	.030	.031	.032	.033	.034	.034	.035	.036	.037	.038
11.5	.030	.030	.031	.032	.033	.034	.034	.035	.036	.037
12.0	.029	.030	.030	.031	.032	.033	.033	.034	.035	.036
12.5	.028	.029	.029	.030	.031	.032	.032	.033	.034	.034
13.0	+0.027	+0.028	+0.028	+0.029	+0.030	+0.031	+0.031	+0.032	+0.033	+0.033
13.5	.026	.027	.028	.028	.029	.030	.030	.031	.032	.032
14.0	.025	.026	.027	.027	.028	.029	.029	.030	.031	.031
14.5	.024	.025	.026	.026	.027	.028	.028	.029	.030	.030
15.0	.024	.024	.025	.025	.026	.027	.027	.028	.029	.029
15.5	+0.023	+0.023	+0.024	+0.024	+0.025	+0.026	+0.026	+0.027	+0.027	+0.028
16.0	.022	.023	.023	.024	.024	.025	.025	.026	.026	.027
16.5	.021	.022	.022	.023	.023	.024	.024	.025	.025	.026
17.0	.020	.021	.021	.022	.022	.023	.023	.024	.024	.025
17.5	.019	.020	.020	.021	.021	.022	.022	.023	.023	.024
18.0	+0.018	+0.019	+0.019	+0.020	+0.020	+0.021	+0.021	+0.022	+0.022	+0.023
18.5	.017	.018	.018	.019	.019	.020	.020	.021	.021	.022
19.0	.017	.017	.018	.018	.018	.019	.019	.020	.020	.021
19.5	.016	.016	.017	.017	.017	.018	.018	.019	.019	.020
20.0	.015	.015	.016	.016	.016	.017	.017	.018	.018	.018
20.5	+0.014	+0.014	+0.015	+0.015	+0.016	+0.016	+0.016	+0.017	+0.017	+0.017
21.0	.013	.014	.014	.014	.015	.015	.015	.016	.016	.016
21.5	.012	.013	.013	.013	.014	.014	.014	.015	.015	.015
22.0	.011	.012	.012	.012	.013	.013	.013	.014	.014	.014
22.5	.011	.011	.011	.011	.012	.012	.012	.013	.013	.013
23.0	+0.010	+0.010	+0.010	+0.010	+0.011	+0.011	+0.011	+0.012	+0.012	+0.012
23.5	.009	.009	.009	.010	.010	.010	.010	.011	.011	.011
24.0	.008	.008	.008	.009	.009	.009	.009	.010	.010	.010
24.5	.007	.007	.008	.008	.008	.008	.008	.009	.009	.009
25.0	.006	.006	.007	.007	.007	.007	.007	.008	.008	.008

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
25°.5	+0.005	+0.006	+0.006	+0.006	+0.006	+0.006	+0.006	+0.006	+0.007	+0.007
26.0	.005	.005	.005	.005	.005	.005	.005	.005	.005	.006
26.5	.004	.004	.004	.004	.004	.004	.004	.004	.004	.005
27.0	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003
27.5	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002
28.0	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001
28.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29.0	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001
29.5	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002
30.0	.002	.002	.002	.003	.003	.003	.003	.003	.003	.003
30.5	−0.003	−0.003	−0.003	−0.003	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004
31.0	.004	.004	.004	.004	.005	.005	.005	.005	.005	.005
31.5	.005	.005	.005	.005	.005	.006	.006	.006	.006	.006
32.0	.006	.006	.006	.006	.006	.007	.007	.007	.007	.007
32.5	.007	.007	.007	.007	.007	.008	.008	.008	.008	.008
33.0	−0.008	−0.008	−0.008	−0.008	−0.008	−0.009	−0.009	−0.009	−0.009	−0.009
33.5	.008	.009	.009	.009	.009	.010	.010	.010	.010	.010
34.0	.009	.010	.010	.010	.010	.010	.011	.011	.011	.011
34.5	.010	.010	.011	.011	.011	.011	.012	.012	.012	.013
35.0	.011	.011	.012	.012	.012	.012	.013	.013	.013	.014
35.5	−0.012	−0.012	−0.012	−0.013	−0.013	−0.013	−0.014	−0.014	−0.014	−0.015
36.0	.013	.013	.013	.014	.014	.014	.015	.015	.015	.016
36.5	.014	.014	.014	.015	.015	.015	.016	.016	.016	.017
37.0	.014	.015	.015	.016	.016	.016	.017	.017	.017	.018
37.5	.015	.016	.016	.017	.017	.017	.018	.018	.019	.019
38.0	−0.016	−0.017	−0.017	−0.017	−0.018	−0.018	−0.019	−0.019	−0.020	−0.020
38.5	.017	.017	.018	.018	.019	.019	.020	.020	.021	.021
39.0	.018	.018	.019	.019	.020	.020	.021	.021	.022	.022
39.5	.019	.019	.020	.020	.021	.021	.022	.022	.023	.023
40.0	.020	.020	.021	.021	.022	.022	.023	.023	.024	.024
40.5	−0.020	−0.021	−0.022	−0.022	−0.023	−0.023	−0.024	−0.024	−0.025	−0.025
41.0	.021	.022	.022	.023	.024	.024	.025	.025	.026	.026
41.5	.022	.023	.023	.024	.025	.025	.026	.026	.027	.027
42.0	.023	.024	.024	.025	.025	.026	.027	.027	.028	.029
42.5	.024	.025	.025	.026	.026	.027	.028	.028	.029	.030
43.0	−0.025	−0.025	−0.026	−0.027	−0.027	−0.028	−0.029	−0.029	−0.030	−0.031
43.5	.026	.026	.027	.028	.028	.029	.030	.030	.031	.032
44.0	.026	.027	.028	.029	.029	.030	.031	.031	.032	.033
44.5	.027	.028	.029	.030	.030	.031	.032	.032	.033	.034
45.0	.028	.029	.030	.030	.031	.032	.033	.033	.034	.035
45.5	−0.029	−0.030	−0.031	−0.031	−0.032	−0.033	−0.034	−0.034	−0.035	−0.036
46.0	.030	.031	.031	.032	.033	.034	.035	.035	.036	.037
46.5	.031	.032	.032	.033	.034	.035	.036	.036	.037	.038
47.0	.032	.032	.033	.034	.035	.036	.037	.037	.038	.039
47.5	.033	.033	.034	.035	.036	.037	.038	.038	.039	.040
48.0	−0.033	−0.034	−0.035	−0.036	−0.037	−0.038	−0.039	−0.040	−0.040	−0.041
48.5	.034	.035	.036	.037	.038	.039	.040	.041	.041	.042
49.0	.035	.036	.037	.038	.039	.040	.041	.042	.042	.043
49.5	.036	.037	.038	.039	.040	.041	.042	.043	.044	.044
50.0	.037	.038	.039	.040	.041	.042	.043	.044	0.45	.046

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
50°.5	−0.038	−0.039	−0.040	−0.041	−0.042	−0.043	−0.044	−0.045	−0.046	−0.047
51.0	.039	.040	.041	.042	.043	.044	.045	.046	0.47	.048
51.5	.039	.040	.041	.042	.044	.045	.046	.047	.048	.049
52.0	.040	.041	.042	.043	.044	.046	.047	.048	.049	.050
52.5	.041	.042	.043	.044	.045	.047	.048	.049	.050	.051
53.0	−0.042	−0.043	−0.044	−0.045	−0.046	−0.047	−0.049	−0.050	−0.051	−0.052
53.5	.043	.044	.045	.046	.047	.048	.050	.051	.052	.053
54.0	.044	.045	.046	.047	.048	.049	.051	.052	.053	.054
54.5	.045	.046	.047	.048	.049	.050	.052	.053	.054	.055
55.0	.045	.047	.048	.049	.050	.051	.053	.054	.055	.056
55.5	−0.046	−0.047	−0.049	−0.050	−0.051	−0.052	−0.054	−0.055	−0.056	−0.057
56.0	.047	.048	.050	.051	.052	.053	.055	.056	.057	.058
56.5	.048	.049	.050	.052	.053	.054	.056	.057	.058	.059
57.0	.049	.050	.051	.053	.054	.055	.057	.058	.059	.060
57.5	.050	.051	.052	.054	.055	.056	.058	.059	.060	.061
58.0	−0.051	−0.052	−0.053	−0.055	−0.056	−0.057	−0.059	−0.060	−0.061	−0.063
58.5	.051	.053	.054	.055	.057	.058	.060	.061	.062	.064
59.0	.052	.054	.055	.056	.058	.059	.061	.062	.063	.065
59.5	.053	.055	.056	.057	.059	.060	.061	.063	.064	.066
60.0	.054	.055	.057	.058	.060	.061	.062	.064	.065	.067
60.5	−0.055	−0.056	−0.058	−0.059	−0.061	−0.062	−0.063	−0.065	−0.066	−0.068
61.0	.056	.057	.059	.060	.062	.063	.064	.066	.067	.069
61.5	.057	.058	.060	.061	.062	.064	.065	.067	.068	.070
62.0	.057	.059	.060	.062	.063	.065	.066	.068	.069	.071
62.5	.058	.060	.061	.063	.064	.066	.067	.069	.071	.072
63.0	−0.059	−0.061	−0.062	−0.064	−0.065	−0.067	−0.068	−0.070	−0.072	−0.073
63.5	.060	.062	.063	.065	.066	0.68	.069	.071	.073	.074
64.0	.061	.062	.064	.066	.067	.069	.070	.072	.074	.075
64.5	.062	.063	.065	.067	.068	.070	.071	.073	.075	.076
65.0	.063	.064	.066	.067	.069	.071	.072	.074	.076	.077
65.5	−0.063	−0.065	−0.067	−0.068	−0.070	−0.072	−0.073	−0.075	−0.077	−0.078
66.0	.064	.066	.068	.069	.071	.073	.074	.076	.078	.079
66.5	.065	.067	.069	.070	.072	.074	.075	.077	.079	.081
67.0	.066	.068	.069	.071	.073	.075	.076	.078	.080	.082
67.5	.067	.069	.070	.072	.074	.076	.077	.079	.081	.083
68.0	−0.068	−0.069	−0.071	−0.073	−0.075	−0.077	−0.078	−0.080	−0.082	−0.084
68.5	.069	.070	.072	.074	.076	.078	.079	.081	.083	.085
69.0	.069	.071	.073	.075	.077	.079	.080	.082	.084	.086
69.5	.070	.072	.074	.076	.078	.079	.081	.083	.085	.087
70.0	.071	.073	.075	.077	.079	.080	.082	.084	.086	.088
70.5	−0.072	−0.074	−0.076	−0.078	−0.080	−0.081	−0.083	−0.085	−0.087	−0.089
71.0	.073	.075	.077	.079	.080	.082	.084	.086	.088	.090
71.5	.074	.076	.078	.079	.081	.083	.085	.087	.089	.091
72.0	.075	.076	.078	.080	.082	.084	.086	.088	.090	.092
72.5	.075	.077	.079	.081	.083	.085	.087	.089	.091	.093
73.0	−0.076	−0.078	−0.080	−0.082	−0.084	−0.086	−0.088	−0.090	−0.092	−0.094
73.5	.077	.079	.081	.083	.085	.087	.089	.091	.093	.095
74.0	.078	.080	.082	.084	.086	.088	.090	.092	.094	.096
74.5	.079	.081	.083	.085	.087	.089	.091	.093	.095	.097
75.0	.080	.082	.084	.086	.088	.090	.092	.094	.096	.099

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
75°.5	−0.081	−0.083	−0.085	−0.087	−0.089	−0.091	−0.093	−0.095	−0.097	−0.100
76.0	.081	.084	.086	.088	.090	.092	.094	.096	.098	.101
76.5	.082	.084	.087	.089	.091	.093	.095	.097	.100	.102
77.0	.083	.085	.087	.090	.092	.094	.096	.098	.101	.103
77.5	.084	.086	.088	.091	.093	.095	.097	.099	.102	.104
78.0	−0.085	−0.087	−0.089	−0.091	−0.094	−0.096	−0.098	−0.100	−0.103	−0.105
78.5	.086	.088	.090	.092	.095	.097	.099	.101	.104	.106
79.0	.086	.089	.091	.093	.096	.098	.100	.102	.105	.107
79.5	.087	.090	.092	.094	.097	.099	.101	.103	.106	.108
80.0	.088	.091	.093	.095	.097	.100	.102	.104	.107	.109
80.5	−0.089	−0.091	−0.094	−0.096	−0.098	−0.101	−0.103	−0.105	−0.108	−0.110
81.0	.090	.092	.095	.097	.099	.102	.104	.106	.109	.111
81.5	.091	.093	.096	.098	.100	.103	.105	.107	.110	.112
82.0	.092	.094	.096	.099	.101	.104	.106	.108	.111	.113
82.5	.092	.095	.097	.100	.102	.105	.107	.109	.112	.114
83.0	−0.093	−0.096	−0.098	−0.101	−0.103	−0.106	−0.108	−0.111	−0.113	−0.115
83.5	.094	.097	.099	.102	.104	.107	.109	.112	.114	.117
84.0	.095	.098	.100	.103	.105	.108	.110	.113	.115	.118
84.5	.096	.098	.101	.103	.106	.108	.111	.114	.116	.119
85.0	.097	.099	.102	.104	.107	.109	.112	.115	.117	.120
85.5	−0.098	−0.100	−0.103	−0.105	−0.108	−0.110	−0.113	−0.116	−0.118	−0.121
86.0	.098	.101	.104	.106	.109	.111	.114	.117	.119	.122
86.5	.099	.102	.105	.107	.110	.112	.115	.118	.120	.123
87.0	.100	.103	.105	.108	.111	.113	.116	.119	.121	.124
87.5	.101	.104	.106	.109	.112	.114	.117	.120	.122	.125
88.0	−0.102	−0.105	−0.107	−0.110	−0.113	−0.115	−0.118	−0.121	−0.123	−0.126
88.5	.103	.105	.108	.111	.114	.116	.119	.122	.124	.127
89.0	.104	.106	.109	.112	.114	.117	.120	.123	.125	.128
89.5	.104	.107	.110	.113	.115	.118	.121	.124	.126	.129
90.0	.105	.108	.111	.114	.116	.119	.122	.125	.127	.130
90.5	−0.106	−0.109	−0.112	−0.114	−0.117	−0.120	−0.123	−0.126	−0.128	−0.131
91.0	.107	.110	.113	.115	.118	.121	.124	.127	.129	.132
91.5	.108	.111	.113	.116	.119	.122	.125	.128	.131	.133
92.0	.109	.112	.114	.117	.120	.123	.126	.129	.132	.134
92.5	.110	.112	.115	.118	.121	.124	.127	.130	.133	.135
93.0	−0.110	−0.113	−0.116	−0.119	−0.122	−0.125	−0.128	−0.131	−0.134	−0.137
93.5	.111	.114	.117	.120	.123	.126	.129	.132	.135	.138
94.0	.112	.115	.118	.121	.124	.127	.130	.133	.136	.139
94.5	.113	.116	.119	.122	.125	.128	.131	.134	.137	.140
95.0	.114	.117	.120	.123	.126	.129	.132	.135	.138	.141
95.5	−0.115	−0.118	−0.121	−0.124	−0.127	−0.130	−0.133	−0.136	−0.139	−0.142
96.0	.115	.119	.122	.125	.128	.131	.134	.137	.140	.143
96.5	.116	.119	.122	.126	.129	.132	.135	.138	.141	.144
97.0	.117	.120	.123	.126	.130	.133	.136	.139	.142	.145
97.5	.118	.121	.124	.127	.130	.134	.137	.140	.143	.146
98.0	−0.119	−0.122	−0.125	−0.128	−0.131	−0.135	−0.138	−0.141	−0.144	−0.147
98.5	.120	.123	.126	.129	.132	.135	.139	.142	.145	.148
99.0	.121	.124	.127	.130	.133	.136	.140	.143	.146	.149
99.5	.121	.125	.128	.131	.134	.137	.141	.144	.147	.150
100.0	.122	.126	.129	.132	.135	.138	.142	.145	.148	.151

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	24.0	24.2	24.4	24.6	24.8	25.0	25.2	25.4	25.6	25.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
0°.0	+0.063	+0.063	+0.064	+0.064	+0.065	+0.065	+0.066	+0.066	+0.067	+0.067
+0.5	+0.061	+0.062	+0.063	+0.063	+0.064	+0.064	+0.065	+0.065	+0.066	+0.066
1.0	.060	.061	.061	.062	.062	.063	.063	.064	.064	.065
1.5	.059	.060	.060	.061	.061	.062	.062	.063	.063	.064
2.0	.058	.059	.059	.060	.060	.061	.061	.062	.062	.063
2.5	.057	.058	.058	.059	.059	.059	.060	.060	.061	.061
3.0	+0.056	+0.056	+0.057	+0.057	+0.058	+0.058	+0.059	+0.059	+0.060	+0.060
3.5	.055	.055	.056	.056	.057	.057	.058	.058	.059	.059
4.0	.054	.054	.055	.055	.056	.056	.057	.057	.057	.058
4.5	.053	.053	.054	.054	.054	.055	.055	.056	.056	.057
5.0	.052	.052	.052	.053	.053	.054	.054	.055	.055	.056
5.5	+0.051	+0.051	+0.051	+0.052	+0.052	+0.053	+0.053	+0.053	+0.054	+0.054
6.0	.049	.050	.050	.051	.051	.052	.052	.052	.053	.053
6.5	.048	.049	.049	.050	.050	.050	.051	.051	.052	.052
7.0	.047	.048	.048	.048	.049	.049	.050	.050	.050	.051
7.5	.046	.047	.047	.047	.048	.048	.048	.049	.049	.050
8.0	+0.045	+0.045	+0.046	+0.046	+0.047	+0.047	+0.047	+0.048	+0.048	+0.048
8.5	.044	.044	.045	.045	.045	.046	.046	.047	.047	.047
9.0	.043	.043	.044	.044	.044	.045	.045	.045	.046	.046
9.5	.042	.042	.042	.043	.043	.044	.044	.044	.045	.045
10.0	.041	.041	.041	.042	.042	.042	.043	.043	.043	.044
10.5	+0.040	+0.040	+0.040	+0.041	+0.041	+0.041	+0.042	+0.042	+0.042	+0.043
11.0	.039	.039	.039	.039	.040	.040	.040	.041	.041	.041
11.5	.037	.038	.038	.038	.039	.039	.039	.040	.040	.040
12.0	.036	.037	.037	.037	.038	.038	.038	.038	.039	.039
12.5	.035	.036	.036	.036	.036	.037	.037	.037	.038	.038
13.0	+0.034	+0.034	+0.035	+0.035	+0.035	+0.036	+0.036	+0.036	+0.036	+0.037
13.5	.033	.033	.034	.034	.034	.034	.035	.035	.035	.036
14.0	.032	.032	.032	.033	.033	.033	.034	.034	.034	.034
14.5	.031	.031	.031	.032	.032	.032	.032	.033	.033	.033
15.0	.030	.030	.030	.030	.031	.031	.031	.031	.032	.032
15.5	+0.029	+0.029	+0.029	+0.029	+0.030	+0.030	+0.030	+0.030	+0.031	+0.031
16.0	.028	.028	.028	.028	.028	.029	.029	.029	.029	.030
16.5	.026	.027	.027	.027	.027	.028	.028	.028	.028	.028
17.0	.025	.026	.026	.026	.026	.026	.027	.027	.027	.027
17.5	.024	.024	.025	.025	.025	.025	.026	.026	.026	.026
18.0	+0.023	+0.023	+0.024	+0.024	+0.024	+0.024	+0.024	+0.025	+0.025	+0.025
18.5	.022	.022	.022	.023	.023	.023	.023	.023	.024	.024
19.0	.021	.021	.021	.022	.022	.022	.022	.022	.022	.023
19.5	.020	.020	.020	.020	.021	.021	.021	.021	.021	.021
20.0	.019	.019	.019	.019	.019	.020	.020	.020	.020	.020
20.5	+0.018	+0.018	+0.018	+0.018	+0.018	+0.018	+0.019	+0.019	+0.019	+0.019
21.0	.017	.017	.017	.017	.017	.017	.017	.018	.018	.018
21.5	.016	.016	.016	.016	.016	.016	.016	.016	.017	.017
22.0	.014	.015	.015	.015	.015	.015	.015	.015	.015	.016
22.5	.013	.013	.014	.014	.014	.014	.014	.014	.014	.014
23.0	+0.012	+0.012	+0.012	+0.013	+0.013	+0.013	+0.013	+0.013	+0.013	+0.013
23.5	.011	.011	.011	.011	.012	.012	.012	.012	.012	.012
24.0	.010	.010	.010	.010	.010	.011	.011	.011	.011	.011
24.5	.009	.009	.009	.009	.009	.009	.009	.010	.010	.010
25.0	.008	.008	.008	.008	.008	.008	.008	.008	.008	.009

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	24.0	24.2	24.4	24.6	24.8	25.0	25.2	25.4	25.6	25.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
25°.5	+0.007	+0.007	+0.007	+0.007	+0.007	+0.007	+0.007	+0.007	+0.007	+0.007
26.0	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
26.5	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005
27.0	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004
27.5	.002	.002	.003	.003	.003	.003	.003	.003	.003	.003
28.0	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001
28.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29.0	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001
29.5	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002
30.0	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003
30.5	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004
31.0	.005	.005	.005	.005	.005	.005	.005	.005	.006	.006
31.5	.006	.006	.006	.006	.006	.007	.007	.007	.007	.007
32.0	.007	.007	.007	.008	.008	.008	.008	.008	.008	.008
32.5	.008	.009	.009	.009	.009	.009	.009	.009	.009	.009
33.0	−0.010	−0.010	−0.010	−0.010	−0.010	−0.010	−0.010	−0.010	−0.010	−0.010
33.5	.011	.011	.011	.011	.011	.011	.011	.011	.011	.011
34.0	.012	.012	.012	.012	.012	.012	.012	.012	.012	.013
34.5	.013	.013	.013	.013	.013	.013	.013	.014	.014	.014
35.0	.014	.014	.014	.014	.014	.014	.015	.015	.015	.015
35.5	−0.015	−0.015	−0.015	−0.015	−0.015	−0.016	−0.016	−0.016	−0.016	−0.016
36.0	.016	.016	.016	.016	.017	.017	.017	.017	.017	.017
36.5	.017	.017	.017	.018	.018	.018	.018	.018	.018	.018
37.0	.018	.018	.019	.019	.019	.019	.019	.019	.019	.019
37.5	.019	.019	.020	.020	.020	.020	.020	.020	.021	.021
38.0	−0.020	−0.021	−0.021	−0.021	−0.021	−0.021	−0.021	−0.022	−0.022	−0.022
38.5	.021	.022	.022	.022	.022	.022	.023	.023	.023	.023
39.0	.023	.023	.023	.023	.023	.024	.024	.024	.024	.024
39.5	.024	.024	.024	.024	.024	.025	.025	.025	.025	.025
40.0	.025	.025	.025	.025	.026	.026	.026	.026	.026	.027
40.5	−0.026	−0.026	−0.026	−0.026	−0.027	−0.027	−0.027	−0.027	−0.028	−0.028
41.0	.027	.027	.027	.028	.028	.028	.028	.029	.029	.029
41.5	.028	.028	.028	.029	.029	.029	.029	.030	.030	.030
42.0	.029	.029	.030	.030	.030	.030	.031	.031	.031	.031
42.5	.030	.030	.031	.031	.031	.031	.032	.032	.032	.032
43.0	−0.031	−0.032	−0.032	−0.032	−0.032	−0.033	−0.033	−0.033	−0.033	−0.034
43.5	.032	.033	.033	.033	.033	.034	.034	.034	.035	.035
44.0	.033	.034	.034	.034	.035	.035	.035	.035	.036	.036
44.5	.035	.035	.035	.035	.036	.036	.036	.037	.037	.037
45.0	.036	.036	.036	.037	.037	.037	.037	.038	.038	.038
45.5	−0.037	−0.037	−0.037	−0.038	−0.038	−0.038	−0.039	−0.039	−0.039	−0.039
46.0	.038	.038	.038	.039	.039	.039	.040	.040	.040	.041
46.5	.039	.039	.040	.040	.040	.041	.041	.041	.041	.042
47.0	.040	.040	.041	.041	.041	.042	.042	.042	.043	.043
47.5	.041	.041	.042	.042	.042	.043	.043	.043	.044	.044
48.0	−0.042	−0.042	−0.043	−0.043	−0.044	−0.044	−0.044	−0.045	−0.045	−0.045
48.5	.043	.044	.044	.044	.045	.045	.045	.046	.046	.046
49.0	.044	.045	.045	.045	.046	.046	.047	.047	.047	.048
49.5	.045	.046	.046	.047	.047	.047	.048	.048	.048	.049
50.0	.046	.047	.047	.048	.048	.048	.049	.049	.050	.050

TABLE 46.

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	24.0	24.2	24.4	24.6	24.8	25.0	25.2	25.4	25.6	25.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
50°.5	−0.048	−0.048	−0.048	−0.049	−0.049	−0.050	−0.050	−0.050	−0.051	−0.051
51.0	.049	.049	.049	.050	.050	.051	.051	.051	.052	.052
51.5	.050	.050	.051	.051	.051	.052	.052	.053	.053	.053
52.0	.051	.051	.052	.052	.053	.053	.053	.054	.054	.055
52.5	.052	.052	.053	.053	.054	.054	.055	.055	.055	.056
53.0	−0.053	−0.053	−0.054	−0.054	−0.055	−0.055	−0.056	−0.056	−0.057	−0.057
53.5	.054	.055	.055	.055	.056	.056	.057	.057	.058	.058
54.0	.055	.056	.056	.057	.057	.057	.058	.058	.059	.059
54.5	.056	.057	.057	.058	.058	.059	.059	.060	.060	.060
55.0	.057	.058	.058	.059	.059	.060	.060	.061	.061	.062
55.5	−0.058	−0.059	−0.059	−0.060	−0.060	−0.061	−0.061	−0.062	−0.062	−0.063
56.0	.060	.060	.060	.061	.061	.062	.062	.063	.063	.064
56.5	.061	.061	.062	.062	.063	.063	.064	.064	.065	.065
57.0	.062	.062	.063	.063	.064	.064	.065	.065	.066	.066
57.5	.063	.063	.064	.064	.065	.065	.066	.066	.067	.067
58.0	−0.064	−0.064	−0.065	−0.065	−0.066	−0.066	−0.067	−0.068	−0.068	−0.069
58.5	.065	.065	.066	.067	.067	.068	.068	.069	.069	.070
59.0	.066	.067	.067	.068	.068	.069	.069	.070	.070	.071
59.5	.067	.068	.068	.069	.069	.070	.070	.071	.072	.072
60.0	.068	.069	.069	.070	.070	.071	.072	.072	.073	.073
60.5	−0.069	−0.070	−0.070	−0.071	−0.072	−0.072	−0.073	−0.073	−0.074	−0.074
61.0	.070	.071	.072	.072	.073	.073	.074	.074	.075	.076
61.5	.071	.072	.073	.073	.074	.074	.075	.076	.076	.077
62.0	.073	.073	.074	.074	.075	.076	.076	.077	.077	.078
62.5	.074	.074	.075	.075	.076	.077	.077	.078	.078	.079
63.0	−0.075	−0.075	−0.076	−0.077	−0.077	−0.078	−0.078	−0.079	−0.080	−0.080
63.5	.076	.076	.077	.078	.078	.079	.080	.080	.081	.081
64.0	.077	.077	.078	.079	.079	.080	.081	.081	.082	.082
64.5	.078	.079	.079	.080	.081	.081	.082	.082	.083	.084
65.0	.079	.080	.080	.081	.082	.082	.083	.084	.084	.085
65.5	−0.080	−0.081	−0.081	−0.082	−0.083	−0.083	−0.084	−0.085	−0.085	−0.086
66.0	.081	.082	.083	.083	.084	.085	.085	.086	.087	.087
66.5	.082	.083	.084	.084	.085	.086	.086	.087	.088	.088
67.0	.083	.084	.085	.085	.086	.087	.087	.088	.089	.090
67.5	.084	.085	.086	.087	.087	.088	.089	.089	.090	.091
68.0	−0.085	−0.086	−0.087	−0.088	−0.088	−0.089	−0.090	−0.090	−0.091	−0.092
68.5	.087	.087	.088	.089	.089	.090	.091	.092	.092	.093
69.0	.088	.088	.089	.090	.091	.091	.092	.093	.093	.094
69.5	.089	.089	.090	.091	.092	.092	.093	.094	.095	.095
70.0	.090	.091	.091	.092	.093	.094	.094	.095	.096	.097
70.5	−0.091	−0.092	−0.092	−0.093	−0.094	−0.095	−0.095	−0.096	−0.097	−0.098
71.0	.092	.093	.094	.094	.095	.096	.097	.097	.098	.099
71.5	.093	.094	.095	.095	.096	.097	.098	.098	.099	.100
72.0	.094	.095	.096	.096	.097	.098	.099	.100	.100	.101
72.5	.095	.096	.097	.098	.098	.099	.100	.101	.102	.102
73.0	−0.096	−0.097	−0.098	−0.099	−0.100	−0.100	−0.101	−0.102	−0.103	−0.104
73.5	.097	.098	.099	.100	.101	.101	.102	.103	.104	.105
74.0	.098	.099	.100	.101	.102	.103	.103	.104	.105	.106
74.5	.100	.100	.101	.102	.103	.104	.105	.105	.106	.107
75.0	.101	.101	.102	.103	.104	.105	.106	.106	.107	.108

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	24.0	24.2	24.4	24.6	24.8	25.0	25.2	25.4	25.6	25.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
75°.5	−0.102	−0.103	−0.103	−0.104	−0.105	−0.106	−0.107	−0.108	−0.108	−0.109
76.0	.103	.104	.104	.105	.106	.107	.108	.109	.110	.110
76.5	.104	.105	.106	.106	.107	.108	.109	.110	.111	.112
77.0	.105	.106	.107	.108	.108	.109	.110	.111	.112	.113
77.5	.106	.107	.108	.109	.110	.110	.111	.112	.113	.114
78.0	−0.107	−0.108	−0.109	−0.110	−0.111	−0.112	−0.112	−0.113	−0.114	−0.115
78.5	.108	.109	.110	.111	.112	.113	.114	.114	.115	.116
79.0	.109	.110	.111	.112	.113	.114	.115	.116	.117	.117
79.5	.110	.111	.112	.113	.114	.115	.116	.117	.118	.119
80.0	.111	.112	.113	.114	.115	.116	.117	.118	.119	.120
80.5	−0.112	−0.113	−0.114	−0.115	−0.116	−0.117	−0.118	−0.119	−0.120	−0.121
81.0	.114	.115	.115	.116	.117	.118	.119	.120	.121	.122
81.5	.115	.116	.117	.118	.118	.119	.120	.121	.122	.123
82.0	.116	.117	.118	.119	.120	.121	.122	.122	.123	.124
82.5	.117	.118	.119	.120	.121	.122	.123	.124	.125	.126
83.0	−0.118	−0.119	−0.120	−0.121	−0.122	−0.123	−0.124	−0.125	−0.126	−0.127
83.5	.119	.120	.121	.122	.123	.124	.125	.126	.127	.128
84.0	.120	.121	.122	.123	.124	.125	.126	.127	.128	.129
84.5	.121	.122	.123	.124	.125	.126	.127	.128	.129	.130
85.0	.122	.123	.124	.125	.126	.127	.128	.129	.130	.131
85.5	−0.123	−0.124	−0.125	−0.126	−0.127	−0.128	−0.129	−0.130	−0.131	−0.133
86.0	.124	.125	.126	.127	.128	.130	.131	.132	.133	.134
86.5	.125	.126	.128	.129	.130	.131	.132	.133	.134	.135
87.0	.126	.128	.129	.130	.131	.132	.133	.134	.135	.136
87.5	.128	.129	.130	.131	.132	.133	.134	.135	.136	.137
88.0	−0.129	−0.130	−0.131	−0.132	−0.133	−0.134	−0.135	−0.136	−0.137	−0.138
88.5	.130	.131	.132	.133	.134	.135	.136	.137	.138	.139
89.0	.131	.132	.133	.134	.135	.136	.137	.138	.140	.141
89.5	.132	.133	.134	.135	.136	.137	.138	.140	.141	.142
90.0	.133	.134	.135	.136	.137	.138	.140	.141	.142	.143
90.5	−0.134	−0.135	−0.136	−0.137	−01.39	−0.140	−0.141	−0.142	−0.143	−0.144
91.0	.135	.136	.137	.138	.140	.141	.142	.143	.144	.145
91.5	.136	.137	.138	.140	.141	.142	.143	.144	.145	.146
92.0	.137	.138	.140	.141	.142	.143	.144	.145	.146	.148
92.5	.138	.139	.141	.142	.143	.144	.145	.146	.148	.149
93.0	−0.139	−0.141	−0.142	−0.143	−0.144	−0.145	−0.146	−0.148	−0.149	−0.150
93.5	.140	.142	.143	.144	.145	.146	.148	.149	.150	.151
94.0	.142	.143	.144	.145	.146	.147	.149	.150	.151	.152
94.5	.143	.144	.145	.146	.147	.149	.150	.151	.152	.153
95.0	.144	.145	.146	.147	.149	.150	.151	.152	.153	.154
95.5	−0.145	−0.146	−0.147	−0.148	−0.150	−0.151	−0.152	−0.153	−0.154	−0.156
96.0	.146	.147	.148	.150	.151	.152	.153	.154	.156	.157
96.5	.147	.148	.149	.151	.152	.153	.154	.156	.157	.158
97.0	.148	.149	.150	.152	.153	.154	.155	.157	.158	.159
97.5	.149	.150	.152	.153	.154	.155	.157	.158	.159	.160
98.0	−0.150	−0.151	−0.153	−0.154	−0.155	−0.156	−0.158	−0.159	−0.160	−0.161
98.5	.151	.153	.154	.155	.156	.158	.159	.160	.161	.163
99.0	.152	.154	.155	.156	.157	.159	.160	.161	.162	.164
99.5	.153	.155	.156	.157	.159	.160	.161	.162	.164	.165
100.0	.154	.156	.157	.158	.160	.161	.162	.163	.165	.166

TABLE 46.

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	26.0	26.2	26.4	26.6	26.8	27.0	27.2	27.4	27.6	27.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
0°.0	+0.068	+0.068	+0.069	+0.069	+0.070	+0.070	+0.071	+0.071	+0.072	+0.072
+0.5	+0.067	+0.067	+0.068	+0.068	+0.069	+0.069	+0.070	+0.070	+0.071	+0.071
1.0	.065	.066	.066	.067	.067	.068	.068	.069	.069	.070
1.5	.064	.065	.065	.066	.066	.067	.067	.068	.068	.069
2.0	.063	.064	.064	.065	.065	.065	.066	.066	.067	.067
2.5	.062	.062	.063	.063	.064	.064	.065	.065	.066	.066
3.0	+0.061	+0.061	+0.062	+0.062	+0.063	+0.063	+0.063	+0.064	+0.064	+0.065
3.5	.059	.060	.060	.061	.061	.062	.062	.063	.063	.064
4.0	.058	.059	.059	.060	.060	.061	.061	.061	.062	.062
4.5	.057	.058	.058	.058	.059	.059	.060	.060	.061	.061
5.0	.056	.056	.057	.057	.058	.058	.059	.059	.059	.060
5.5	+0.055	+0.055	+0.056	+0.056	+0.056	+0.057	+0.057	+0.058	+0.058	+0.059
6.0	.054	.054	.054	.055	.055	.056	.056	.056	.057	.057
6.5	.052	.053	.053	.054	.054	.054	.055	.055	.056	.056
7.0	.051	.052	.052	.052	.053	.053	.054	.054	.054	.055
7.5	.050	.050	.051	.051	.052	.052	.052	.053	.053	.053
8.0	+0.049	+0.049	+0.050	+0.050	+0.050	+0.051	+0.051	+0.051	+0.052	+0.052
8.5	.048	.048	.048	.049	.049	.049	.050	.050	.051	.051
9.0	.046	.047	.047	.048	.048	.048	.049	.049	.049	.050
9.5	.045	.046	.046	.046	.047	.047	.047	.048	.048	.048
10.0	.044	.044	.045	.045	.045	.046	.046	.046	.047	.047
10.5	+0.043	+0.043	+0.044	+0.044	+0.044	+0.045	+0.045	+0.045	+0.046	+0.046
11.0	.042	.042	.042	.043	.043	.043	.044	.044	.044	.045
11.5	.041	.041	.041	.041	.042	.042	.042	.043	.043	.043
12.0	.039	.040	.040	.040	.041	.041	.041	.041	.042	.042
12.5	.038	.038	.039	.039	.039	.040	.040	.040	.040	.041
13.0	+0.037	+0.037	+0.038	+0.038	+0.038	+0.038	+0.039	+0.039	+0.039	+0.040
13.5	.036	.036	.036	.037	.037	.037	.037	.038	.038	.038
14.0	.035	.035	.035	.035	.036	.036	.036	.036	.037	.037
14.5	.033	.034	.034	.034	.034	.035	.035	.035	.035	.036
15.0	.032	.032	.033	.033	.033	.033	.034	.034	.034	.034
15.5	+0.031	+0.031	+0.032	+0.032	+0.032	+0.032	+0.032	+0.033	+0.033	+0.033
16.0	.030	.030	.030	.031	.031	.031	.031	.031	.032	.032
16.5	.029	.029	.029	.029	.030	.030	.030	.030	.030	.031
17.0	.027	.028	.028	.028	.028	.029	.029	.029	.029	.029
17.5	.026	.027	.027	.027	.027	.027	.028	.028	.028	.028
18.0	+0.025	+0.025	+0.026	+0.026	+0.026	+0.026	+0.026	+0.026	+0.027	+0.027
18.5	.024	.024	.024	.024	.025	.025	.025	.025	.025	.026
19.0	.023	.023	.023	.023	.023	.024	.024	.024	.024	.024
19.5	.022	.022	.022	.022	.022	.022	.023	.023	.023	.023
20.0	.020	.021	.021	.021	.021	.021	.021	.021	.022	.022
20.5	+0.019	+0.019	+0.020	+0.020	+0.020	+0.020	+0.020	+0.020	+0.020	+0.021
21.0	.018	.018	.018	.018	.019	.019	.019	.019	.019	.019
21.5	.017	.017	.017	.017	.017	.017	.018	.018	.018	.018
22.0	.016	.016	.016	.016	.016	.016	.016	.017	.017	.017
22.5	.014	.015	.015	.015	.015	.015	.015	.015	.015	.015
23.0	+0.013	+0.013	+0.014	+0.014	+0.014	+0.014	+0.014	+0.014	+0.014	+0.014
23.5	.012	.012	.012	.012	.012	.013	.013	.013	.013	.013
24.0	.011	.011	.011	.011	.011	.011	.011	.012	.012	.012
24.5	.010	.010	.010	.010	.010	.010	.010	.010	.010	.110
25.0	.009	.009	.009	.009	.009	.009	.009	.009	.009	.009

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	26.0	26.2	26.4	26.6	26.8	27.0	27.2	27.4	27.6	27.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
25°.5	+0.007	+0.007	+0.008	+0.008	+0.008	+0.008	+0.008	+0.008	+0.008	+0.008
26.0	.006	.006	.006	.006	.006	.006	.006	.007	.007	.007
26.5	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005
27.0	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004
27.5	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003
28.0	+0.001	+0.001	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002
28.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29.0	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001
29.5	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002
30.0	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003
30.5	−0.004	−0.004	−0.004	−0 005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005
31.0	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
31.5	.007	.007	.007	.007	.007	.007	.007	.007	.007	.007
32.0	.008	.008	.008	.008	.008	.008	.008	.008	.008	.009
32.5	.009	.009	.009	.009	.009	.009	.010	.010	.010	.010
33.0	−0.010	−0.010	−0.010	−0.011	−0.011	−0.011	−0.011	−0.011	−0.011	−0.011
33.5	.011	.012	.012	.012	.012	.012	.012	.012	.012	.012
34.0	.013	.013	.013	.013	.013	.013	.013	.013	.013	.014
34.5	.014	.014	.014	.014	.014	.014	.014	.015	.015	.015
35.0	.015	.015	.015	.015	.015	.016	.016	.016	.016	.016
35.5	−0.016	−0.016	−0.016	−0.017	−0.017	−0.017	−0.017	−0.017	−0.017	−0.017
36.0	.017	.018	.018	.018	.018	.018	.018	.018	.018	.019
36.5	.019	.019	.019	.019	.019	.019	.019	.020	.020	.020
37.0	.020	.020	.020	.020	.020	.021	.021	.021	.021	.021
37.5	.021	.021	.021	.021	.022	.022	.022	.022	.022	.022
38.0	−0.022	−0.022	−0.022	−0.023	−0.023	−0.023	−0.023	−0.023	−0.023	−0.024
38.5	.023	.023	.024	.024	.024	.024	.024	.025	.025	.025
39.0	.024	.025	.025	.025	.025	.025	.026	.026	.026	.026
39.5	.026	.026	.026	.026	.026	.027	.027	.027	.027	.027
40.0	.027	.027	.027	.027	.028	.028	.028	.028	.028	.029
40.5	−0.028	−0.028	−0.028	−0.029	−0.029	−0.029	−0.029	−0.030	−0.030	−0.030
41.0	.029	.029	.030	.030	.030	.030	.031	.031	.031	.031
41.5	.030	.031	.031	.031	.031	.032	.032	.032	.032	.032
42.0	.032	.032	.032	.032	.033	.033	.033	.033	.033	.034
42.5	.033	.033	.033	.033	.034	.034	.034	.034	.035	.035
43.0	−0.034	−0.034	−0.034	−0.035	−0.035	−0.035	−0.035	−0.036	−0.036	−0.036
43.5	.035	.035	.036	.036	.036	.036	.037	.037	.037	.037
44.0	.036	.037	.037	.037	.037	.038	.038	.038	.038	.039
44.5	.037	.038	.038	.038	.039	.039	.039	.039	.040	.040
45.0	.039	.039	.039	.039	.040	.040	.040	.041	.041	.041
45.5	−0.040	−0.040	−0.040	−0.041	−0.041	−0.041	−0.042	−0.042	−0.042	−0.043
46.0	.041	.041	.042	.042	.042	.043	.043	.043	.043	.044
46.5	.042	.042	.043	.043	.043	.044	.044	.044	.045	.045
47.0	.043	.044	.044	.044	.045	.045	.045	.046	.046	.046
47.5	.045	.045	.045	.046	.046	.046	.047	.047	.047	.048
48.0	−0.046	−0.046	−0.046	−0.047	−0.047	−0.047	−0.048	−0.048	−0.048	−0.049
48.5	.047	.047	.048	.048	.048	.049	.049	.049	.050	.050
49.0	.048	.048	.049	.049	.049	.050	.050	.051	.051	.051
49.5	.049	.050	.050	.050	.051	.051	.051	.052	.052	.053
50.0	.050	.051	.051	.052	.052	.052	.053	.053	.053	.054

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	26.0	26.2	26.4	26.6	26.8	27.0	27.2	27.4	27.6	27.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
50°.5	—0.052	—0.052	—0.052	—0.053	—0.053	—0.054	—0.054	—0.054	—0.055	—0.055
51.0	.053	.053	.054	.054	.054	.055	.055	.056	.056	.056
51.5	.054	.054	.055	.055	.056	.056	.056	.057	.057	.058
52.0	.055	.055	.056	.056	.057	.057	.058	.058	.058	.059
52.5	.056	.057	.057	.058	.058	.058	.059	.059	.060	.060
53.0	—0.057	—0.058	—0.058	—0.059	—0.059	—0.060	—0.060	—0.061	—0.061	—0.061
53.5	.059	.059	.059	.060	.060	.061	.061	.062	.062	.063
54.0	.060	.060	.061	.061	.062	.062	.063	.063	.063	.064
54.5	.061	.061	.062	.062	.063	.063	.064	.064	.065	.065
55.0	.062	.063	.063	.064	.064	.064	.065	.065	.066	.066
55.5	—0.063	—0.064	—0.064	—0.065	—0.065	—0.066	—0.066	—0.067	—0.067	—0.068
56.0	.064	.065	.065	.066	.066	.067	.067	.068	.068	.069
56.5	.066	.066	.067	.067	.068	.068	.069	.069	.070	.070
57.0	.067	.067	.068	.068	.069	.069	.070	.070	.071	.071
57.5	.068	.069	.069	.070	.070	.071	.071	.072	.072	.073
58.0	—0.069	—0.070	—0.070	—0.071	—0.071	—0.072	—0.072	—0.073	—0.073	—0.074
58.5	.070	.071	.071	.072	.072	.073	.074	.074	.075	.075
59.0	.072	.072	.073	.073	.074	.074	.075	.075	.076	.076
59.5	.073	.073	.074	.074	.075	.075	.076	.077	.077	.078
60.0	.074	.074	.075	.076	.076	.077	.077	.078	.078	.079
60.5	—0.075	—0.076	—0.076	—0.077	—0.077	—0.078	—0.078	—0.079	—0.080	—0.080
61.0	.076	.077	.077	.078	.079	.079	.080	.080	.081	.081
61.5	.077	.078	.079	.079	.080	.080	.081	.082	.082	.083
62.0	.079	.079	.080	.080	.081	.082	.082	.083	.083	.084
62.5	.080	.080	.081	.082	.082	.083	.083	.084	.085	.085
63.0	—0.081	—0.082	—0.082	—0.083	—0.083	—0.084	—0.085	—0.085	—0.086	—0.086
63.5	.082	.083	.083	.084	.085	.085	.086	.086	.087	.088
64.0	.083	.084	.085	.085	.086	.086	.087	.088	.088	.089
64.5	.084	.085	.086	.086	.087	.088	.088	.089	.090	.090
65.0	.086	.086	.087	.088	.088	.089	.090	.090	.091	.092
65.5	—0.087	—0.087	—0.088	—0.089	—0.089	—0.090	—0.091	—0.091	—0.092	—0.093
66.0	.088	.089	.089	.090	.091	.091	.092	.093	.093	.094
66.5	.089	.090	.090	.091	.092	.093	.093	.094	.095	.095
67.0	.090	.091	.092	.092	.093	.094	.094	.095	.096	.097
67.5	.092	.092	.093	.094	.094	.095	.096	.096	.097	.098
68.0	—0.093	—0.093	—0.094	—0.095	—0.095	—0.096	—0.097	—0.098	—0.098	—0.099
68.5	.094	.095	.095	.096	.097	.097	.098	.099	.100	.100
69.0	.095	.096	.096	.097	.098	.099	.099	.100	.101	.102
69.5	.096	.097	.098	.098	.099	.100	.101	.101	.102	.103
70.0	.097	.098	.099	.100	.100	.101	.102	.103	.103	.104
70.5	—0.098	—0.099	—0.100	—0.101	—0.101	—0.102	—0.103	—0.104	—0.105	—0.105
71.0	.100	.100	.101	.102	.103	.103	.104	.105	.106	.107
71.5	.101	.102	.102	.103	.104	.105	.105	.106	.107	.108
72.0	.102	.103	.104	.104	.105	.106	.107	.107	.108	.109
72.5	.103	.104	.105	.106	.106	.107	.108	.109	.109	.110
73.0	—0.104	—0.105	—0.106	—0.107	—0.108	—0.108	—0.109	—0.110	—0.111	—0.112
73.5	.105	.106	.107	.108	.109	.110	.110	.111	.112	.113
74.0	.107	.107	.108	.109	.110	.111	.112	.112	.113	.114
74.5	.108	.109	.109	.110	.111	.112	.113	.114	114	.115
75.0	.109	.110	.111	.112	.112	.113	.114	.115	116	.117

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	26.0	26.2	26.4	26.6	26.8	27.0	27.2	27.4	27.6	27.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
75°.5	−0.110	−0.111	−0.112	−0.113	−0.114	−0.114	−0.115	−0.116	−0.117	−0.118
76.0	.111	.112	.113	.114	.115	.116	.116	.117	.118	.119
76.5	.113	.113	.114	.115	.116	.117	.118	.119	.119	.120
77.0	.114	.115	.115	.116	.117	.118	.119	.120	.121	.122
77.5	.115	.116	.117	.117	.118	.119	.120	.121	.122	.123
78.0	−0.116	−0.117	−0.118	−0.119	−0.120	−0.120	−0.121	−0.122	−0.123	−0.124
78.5	.117	.118	.119	.120	.121	.122	.123	.123	.124	.125
79.0	.118	.119	.120	.121	.122	.123	.124	.125	.126	.127
79.5	.120	.120	.121	.122	.123	.124	.125	.126	.127	.128
80.0	.121	.122	.123	.123	.124	.125	.126	.127	.128	.129
80.5	−0.122	−0.123	−0.124	−0.125	−0.126	−0.127	−0.127	−0.128	−0.129	−0.130
81.0	.123	.124	.125	.126	.127	.128	.129	.130	.131	.132
81.5	.124	.125	.126	.127	.128	.129	.130	.131	.132	.133
82.0	.125	.126	.127	.128	.129	.130	.131	.132	.133	.134
82.5	.127	.128	.128	.129	.130	.131	.132	.133	.134	.135
83.0	−0.128	−0.129	−0.130	−0.131	−0.132	−0.133	−0.134	−0.135	−0.136	−0.137
83.5	.129	.130	.131	.132	.133	.134	.135	.136	.137	.138
84.0	.130	.131	.132	.133	.134	.135	.136	.137	.138	.139
84.5	.131	.132	.133	.134	.135	.136	.137	.138	.139	.140
85.0	.132	.133	.134	.135	.136	.137	.138	.139	.141	.142
85.5	−0.134	−0.135	−0.136	−0.137	−0.138	−0.139	−0.140	−0.141	−0.142	−0.143
86.0	.135	.136	.137	.138	.139	.140	.141	.142	.143	.144
86.5	.136	.137	.138	.139	.140	.141	.142	.143	.144	.145
87.0	.137	.138	.139	.140	.141	.142	.143	.144	.145	.147
87.5	.138	.139	.140	.141	.142	.144	.145	.146	.147	.148
88.0	−0.139	−0.140	−0.142	−0.143	−0.144	−0.145	−0.146	−0.147	−0.148	−0.149
88.5	.141	.142	.143	.144	.145	.146	.147	.148	.149	.150
89.0	.142	.143	.144	.145	.146	.147	.148	.149	.150	.152
89.5	.143	.144	.145	.146	.147	.148	.149	.151	.152	.153
90.0	.144	.145	.146	.147	.148	.150	.151	.152	.153	.154
90.5	−0.145	−0.146	−0.147	−0.149	−0.150	−0.151	−0.152	−0.153	−0.154	−0.155
91.0	.146	.147	.149	.150	.151	.152	.153	.154	.155	.157
91.5	.148	.149	.150	.151	.152	.153	.154	.155	.157	.158
92.0	.149	.150	.151	.152	.153	.154	.156	.157	.158	.159
92.5	.150	.151	.152	.153	.154	.156	.157	.158	.159	.160
93.0	−0.151	−0.152	−0.153	−0.155	−0.156	−0.157	−0.158	−0.159	−0.160	−0.161
93.5	.152	.153	.155	.156	.157	.158	.159	.160	.162	.163
94.0	.153	.155	.156	.157	.158	.159	.160	.162	.163	.164
94.5	.155	.156	.157	.158	.159	.160	.162	.163	.164	.165
95.0	.156	.157	.158	.159	.160	.162	.163	.164	.165	.166
95.5	−0.157	−0.158	−0.159	−0.160	−0.162	−0.163	−0.164	−0.165	−0.167	−0.168
96.0	.158	.159	.160	.162	.163	.164	.165	.167	.168	.169
96.5	.159	.160	.162	.163	.164	.165	.167	.168	.169	.170
97.0	.160	.162	.163	.164	.165	.167	.168	.169	.170	.171
97.5	.162	.163	.164	.165	.166	.168	.169	.170	.171	.173
98.0	−0.163	−0.164	−0.165	−0.166	−0.168	−0.169	−0.170	−0.171	−0.173	−0.174
98.5	.164	.165	.166	.168	.169	.170	.171	.173	.174	.175
99.0	.165	.166	.168	.169	.170	.171	.173	.174	.175	.176
99.5	.166	.167	.169	.170	.171	.173	.174	.175	.176	.178
100.0	.167	.169	.170	.171	.172	.174	.175	.176	.178	.179

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	28.0	28.2	28.4	28.6	28.8	29.0	29.2	29.4	29.6	29.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
0°.0	+0.073	+0.074	+0.074	+0.075	+0.075	+0.076	+0.076	+0.077	+0.077	+0.078
+0.5	+0.072	+0.072	+0.073	+0.073	+0.074	+0.074	+0.075	+0.075	+0.076	+0.076
1.0	.070	.071	.071	.072	.072	.073	.073	.074	.074	.075
1.5	.069	.070	.070	.071	.071	.072	.072	.073	.073	.074
2.0	.068	.068	.069	.069	.070	.070	.071	.071	.072	.072
2.5	.067	.067	.068	.068	.069	.069	.069	.070	.070	.071
3.0	+0.065	+0.066	+0.066	+0.067	+0.067	+0.068	+0.068	+0.069	+0.069	+0.070
3.5	.064	.065	.065	.065	.066	.066	.067	.067	.068	.068
4.0	.063	.063	.064	.064	.065	.065	.065	.066	.066	.067
4.5	.062	.062	.062	.063	.063	.064	.064	.065	.065	.065
5.0	.060	.061	.061	.062	.062	.062	.063	.063	.064	.064
5.5	+0.059	+0.059	+0.060	+0.060	+0.061	+0.061	+0.062	+0.062	+0.062	+0.063
6.0	.058	.058	.059	.059	.059	.060	.060	.061	.061	.061
6.5	.056	.057	.057	.058	.058	.058	.059	.059	.060	.060
7.0	.055	.056	.056	.056	.057	.057	.057	.058	.058	.059
7.5	.054	.054	.055	.055	.055	.056	.056	.057	.057	.057
8.0	+0.053	+0.053	+0.053	+0.054	+0.054	+0.054	+0.055	+0.055	+0.056	+0.056
8.5	.051	.052	.052	.052	.053	.053	.053	.054	.054	.055
9.0	.050	.050	.051	.051	.051	.052	.052	.053	.053	.053
9.5	.049	.049	.049	.050	.050	.050	.051	.051	.052	.052
10.0	.047	.048	.048	.048	.049	.049	.050	.050	.050	.051
10.5	+0.046	+0.047	+0.047	+0.047	+0.048	+0.048	+0.048	+0.049	+0.049	+0.049
11.0	.045	.045	.046	.046	.046	.047	.047	.047	.047	.048
11.5	.044	.044	.044	.045	.045	.045	.046	.046	.046	.046
12.0	.042	.043	.043	.043	.044	.044	.044	.044	.045	.045
12.5	.041	.041	.042	.042	.042	.043	.043	.043	.043	.044
13.0	+0.040	+0.040	+0.040	+0.041	+0.041	+0.041	+0.042	+0.042	+0.042	+0.042
13.5	.039	.039	.039	.039	.040	.040	.040	.040	.041	.041
14.0	.037	.038	.038	.038	.038	.039	.039	.039	.039	.040
14.5	.036	.036	.037	.037	.037	.037	.038	.038	.038	.038
15.0	.035	.035	.035	.035	.036	.036	.036	.036	.037	.037
15.5	+0.033	+0.034	+0.034	+0.034	+0.034	+0.035	+0.035	+0.035	+0.035	+0.036
16.0	.032	.032	.033	.033	.033	.033	.034	.034	.034	.034
16.5	.031	.031	.031	.032	.032	.032	.032	.032	.033	.033
17.0	.030	.030	.030	.030	.030	.031	.031	.031	.031	.032
17.5	.028	.029	.029	.029	.029	.029	.030	.030	.030	.030
18.0	+0.027	+0.027	+0.027	+0.028	+0.028	+0.028	+0.028	+0.028	+0.029	+0.029
18.5	.026	.026	.026	.026	.027	.027	.027	.027	.027	.027
19.0	.025	.025	.025	.025	.025	.025	.026	.026	.026	.026
19.5	.023	.023	.024	.024	.024	.024	.024	.024	.025	.025
20.0	.022	.022	.022	.022	.023	.023	.023	.023	.023	.023
20.5	+0.021	+0.021	+0.021	+0.021	+0.021	+0.021	+0.022	+0.022	+0.022	+0.022
21.0	.019	.020	.020	.020	.020	.020	.020	.020	.021	.021
21.5	.018	.018	.018	.019	.019	.019	.019	.019	.019	.019
22.0	.017	.017	.017	.017	.017	.017	.018	.018	.018	.018
22.5	.016	.016	.016	.016	.016	.016	.016	.016	.016	.017
23.0	+0.014	+0.014	+0.015	+0.015	+0.015	+0.015	+0.015	+0.015	+0.015	+0.015
23.5	.013	.013	.013	.013	.013	.014	.014	.014	.014	.014
24.0	.012	.012	.012	.012	.012	.012	.012	.012	.012	.013
24.5	.011	.011	.011	.011	.011	.011	.011	.011	.011	.011
25.0	.009	.009	.009	.009	.009	.010	.010	.010	.010	.010

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	28.0	28.2	28.4	28.6	28.8	29.0	29.2	29.4	29.6	29.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
25°.5	+0.008	+0.008	+0.008	+0.008	+0.008	+0.008	+0.008	+0.008	+0.008	+0.008
26.0	.007	.007	.007	.007	.007	.007	.007	.007	.007	.007
26.5	.005	.005	.005	.006	.006	.006	.006	.006	.006	.006
27.0	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004
27.5	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003
28.0	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002
28.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29.0	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001
29.5	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002
30.0	.003	.004	.004	.004	.004	.004	.004	.004	.004	.004
30.5	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005
31.0	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
31.5	.007	.007	.007	.007	.008	.008	.008	.008	.008	.008
32.0	.009	.009	.009	.009	.009	.009	.009	009	.009	.009
32.5	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010
33.0	−0.011	−0.011	−0.011	−0.011	−0.011	−0.012	−0.012	−0.012	−0.012	−0.012
33.5	.012	.012	.013	.013	.013	.013	.013	.013	.013	.013
34.0	.014	.014	.014	.014	.014	.014	.014	.014	.014	.015
34.5	.015	.015	.015	.015	.015	.015	.016	.016	.016	.016
35.0	.016	.016	.016	.017	.017	.017	.017	.017	.017	.017
35.5	−0.017	−0.018	−0.018	−0.018	−0.018	−0.018	−0.018	−0.018	−0.018	−0.019
36.0	.019	.019	.019	.019	.019	.019	.020	.020	.020	.020
36.5	.020	.020	.020	.020	.021	.021	.021	.021	.021	.021
37.0	.021	.021	.022	.022	.022	.022	.022	.022	.022	.023
37.5	.023	.023	.023	.023	.023	.023	.024	.024	.024	.024
38.0	−0.024	−0.024	−0.024	−0.024	−0.024	−0.025	−0.025	−0.025	−0.025	−0.025
38.5	.025	.025	.025	.026	.026	.026	.026	.026	.027	.027
39.0	.026	.027	.027	.027	.027	.027	.027	.028	.028	.028
39.5	.028	.028	.028	.028	.028	.029	.029	.029	.029	.029
40.0	.029	.029	.029	.030	.030	.030	.030	.030	.031	.031
40.5	−0.030	−0.030	−0.031	−0.031	−0.031	−0.031	−0.031	−0.032	−0.032	−0.032
41.0	.031	.032	.032	.032	.032	.033	.033	.033	.033	.033
41.5	.033	.033	.033	.033	.034	.034	.034	.034	.035	.035
42.0	.034	.034	.034	.035	.035	.035	.035	.036	.036	.036
42.5	.035	.035	.036	.036	.036	.036	.037	.037	.037	.037
43.0	−0.036	−0.037	−0.037	−0.037	−0.038	−0.038	−0.038	−0.038	−0.039	−0.039
43.5	.038	.038	.038	.039	.039	.039	.039	.040	.040	.040
44.0	.039	.039	.040	.040	.040	.040	.041	.041	.041	.042
44.5	.040	.041	.041	.041	.041	.042	.042	.042	.043	.043
45.0	.042	.042	.042	.042	.043	.043	.043	.044	.044	.044
45.5	−0.043	−0.043	−0.043	−0.044	−0.044	−0.044	−0.045	−0.045	−0.045	−0.046
46.0	.044	.044	.045	.045	.045	.046	.046	.046	.047	.047
46.5	.045	.046	.046	.046	.047	.047	.047	.048	.048	.048
47.0	.047	.047	.047	.048	.048	.048	.049	.049	.049	.050
47.5	.048	.048	.049	.049	.049	.050	.050	.050	.051	.051
48.0	−0.049	−0.050	−0.050	−0.050	−0.051	−0.051	−0.051	−0.052	−0.052	−0.052
48.5	.050	.051	.051	.052	.052	.052	.053	.053	.053	.054
49.0	.052	.052	.052	.053	.053	.054	.054	.054	.055	.055
49.5	.053	.053	.054	.054	.054	.055	.055	.056	.056	.056
50.0	.054	.055	.055	.055	.056	.056	.057	.057	.057	.058

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	28.0	28.2	28.4	28.6	28.8	29.0	29.2	29.4	29.6	29.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
50°.5	−0.055	−0.056	−0.056	−0.057	−0.057	−0.057	−0.058	−0.058	−0.059	−0.059
51.0	.057	.057	.058	.058	.058	.059	.059	.060	.060	.060
51.5	.058	.058	.059	.059	.060	.060	.061	.061	.061	.062
52.0	.059	.060	.060	.061	.061	.061	.062	.062	.063	.063
52.5	.061	.061	.061	.062	.062	.063	.063	.064	.064	.064
53.0	−0.062	−0.062	−0.063	−0.063	−0.064	−0.064	−0.064	−0.065	−0.065	−0.066
53.5	.063	.064	.064	.064	.065	.065	.066	.066	.067	.067
54.0	.064	.065	.065	.066	.066	.067	.067	.068	.068	.068
54.5	.066	.066	.067	.067	.067	.068	.068	.069	.069	.070
55.0	.067	.067	.068	.068	.069	.069	.070	.070	.071	.071
55.5	−0.068	−0.069	−0.069	−0.070	−0.070	−0.071	−0.071	−0.072	−0.072	−0.073
56.0	.069	.070	.070	.071	.071	.072	.072	.073	.073	.074
56.5	.071	.071	.072	.072	.073	.073	.074	.074	.075	.075
57.0	.072	.072	.073	.073	.074	.075	.075	.076	.076	.077
57.5	.073	.074	.074	.075	.075	.076	.076	.077	.077	.078
58.0	−0.074	−0.075	−0.076	−0.076	−0.077	−0.077	−0.078	−0.078	−0.079	−0.079
58.5	.076	.076	.077	.077	.078	.078	.079	.080	.080	.081
59.0	.077	.078	.078	.079	.079	.080	.080	.081	.081	.082
59.5	.078	.079	.079	.080	.081	.081	.082	.082	.083	.083
60.0	.080	.080	.081	.081	.082	.082	.083	.084	.084	.085
60.5	−0.081	−0.081	−0.082	−0.083	−0.083	−0.084	−0.084	−0.085	−0.085	−0.086
61.0	.082	.083	.083	.084	.084	.085	.086	.086	.087	.087
61.5	.083	.084	.085	.085	.086	.086	.087	.087	.088	.089
62.0	.085	.085	.086	.086	.087	.088	.088	.089	.089	.090
62.5	.086	.086	.087	.088	.088	.089	.090	.090	.091	.091
63.0	−0.087	−0.088	−0.088	−0.089	−0.090	−0.090	−0.091	−0.091	−0.092	−0.093
63.5	.088	.089	.090	.090	.091	.092	.092	.093	.093	.094
64.0	.090	.090	.091	.092	.092	.093	.093	.094	.095	.095
64.5	.091	.092	.092	.093	.093	.094	.095	.095	.096	.097
65.0	.092	.093	.093	.094	.095	.095	.096	.097	.097	.098
65.5	−0.093	−0.094	−0.095	−0.095	−0.096	−0.097	−0.097	−0.098	−0.099	−0.099
66.0	.095	.095	.096	.097	.097	.098	.099	.099	.100	.101
66.5	.096	.097	.097	.098	.099	.099	.100	.101	.101	.102
67.0	.097	.098	.099	.099	.100	.101	.101	.102	.103	.103
67.5	.098	.099	.100	.101	.101	.102	.103	.103	.104	.105
68.0	−0.100	−0.100	−0.101	−0.102	−0.103	−0.103	−0.104	−0.105	−0.105	−0.106
68.5	.101	.102	.102	.103	.104	.105	.105	.106	.107	.107
69.0	.102	.103	.104	.104	.105	.106	.107	.107	.108	.109
69.5	.104	.104	.105	.106	.106	.107	.108	.109	.109	.110
70.0	.105	.106	.106	.107	.108	.109	.109	.110	.111	.112
70.5	−0.106	−0.107	−0.108	−0.108	−0.109	−0.110	−0.111	−0.111	−0.112	−0.113
71.0	.107	.108	.109	.110	.110	.111	.112	.113	.113	.114
71.5	.109	.109	.110	.111	.112	.112	.113	.114	.115	.116
72.0	.110	.111	.111	.112	.113	.114	.115	.115	.116	.117
72.5	.111	.112	.113	.113	.114	.115	.116	.117	.117	.118
73.0	−0.112	−0.113	−0.114	−0.115	−0.116	−0.116	−0.117	−0.118	−0.119	−0.120
73.5	.114	.114	.115	.116	.117	.118	.118	.119	.120	.121
74.0	.115	.116	.117	.117	.118	.119	.120	.121	.121	.122
74.5	.116	.117	.118	.119	.119	.120	.121	.122	.123	.124
75.0	.117	.118	.119	.120	.121	.122	.122	.123	.124	.125

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	28.0	28.2	28.4	28.6	28.8	29.0	29.2	29.4	29.6	29.8
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
75°.5	−0.119	−0.119	−0.120	−0.121	−0.122	−0.123	−0.124	−0.125	−0.125	−0.126
76.0	.120	.121	.122	.122	.123	.124	.125	.126	.127	.128
76.5	.121	.122	.123	.124	.125	.125	.126	.127	.128	.129
77.0	.122	.123	.124	.125	.126	.127	.128	.129	.129	.130
77.5	.124	.125	.125	.126	.127	.128	.129	.130	.131	.132
78.0	−0.125	−0.126	−0.127	−0.128	−0.129	−0.129	−0.130	−0.131	−0.132	−0.133
78.5	.126	.127	.128	.129	.130	.131	.132	.133	.133	.134
79.0	.127	.128	.129	.130	.131	.132	.133	.134	.135	.136
79.5	.129	.130	.131	.131	.132	.133	.134	.135	.136	.137
80.0	.130	.131	.132	.133	.134	.135	.136	.136	.137	.138
80.5	−0.131	−0.132	−0.133	−0.134	−0.135	−0.136	−0.137	−0.138	−0.139	−0.140
81.0	.132	.133	.134	.135	.136	.137	.138	.139	.140	.141
81.5	.134	.135	.136	.137	.138	.139	.139	.140	.141	.142
82.0	.135	.136	.137	.138	.139	.140	.141	.142	.143	.144
82.5	.136	.137	.138	.139	.140	.141	.142	.143	.144	.145
83.0	−0.138	−0.139	−0.139	−0.140	−0.141	−0.142	−0.143	−0.144	−0.145	−0.146
83.5	.139	.140	.141	.142	.143	.144	.145	.146	.147	.148
84.0	.140	.141	.142	.143	.144	.145	.146	.147	.148	.149
84.5	.141	.142	.143	.144	.145	.146	.147	.148	.149	.150
85.0	.143	.144	.145	.146	.147	.148	.149	.150	.151	.152
85.5	−0.144	−0.145	−0.146	−0.147	−0.148	−0.149	−0.150	−0.151	−0.152	−0.153
86.0	.145	.146	.147	.148	.149	.150	.151	.152	.153	.154
86.5	.146	.147	.148	.149	.151	.152	.153	.154	.155	.156
87.0	.148	.149	.150	.151	.152	.153	.154	.155	.156	.157
87.5	.149	.150	.151	.152	.153	.154	.155	.156	.157	.158
88.0	−0.150	−0.151	−0.152	−0.153	−0.154	−0.155	−0.157	−0.158	−0.159	−0.160
88.5	.151	.152	.154	.155	.156	.157	.158	.159	.160	.161
89.0	.153	.154	.155	.156	.157	.158	.159	.160	.161	.162
89.5	.154	.155	.156	.157	.158	.159	.160	.162	.163	.164
90.0	.155	.156	.157	.158	.160	.161	.162	.163	.164	.165
90.5	−0.156	−0.157	−0.159	−0.160	−0.161	−0.162	−0.163	−0.164	−0.165	−0.166
91.0	.158	.159	.160	.161	.162	.163	.164	.166	.167	.168
91.5	.159	.160	.161	.162	.163	.165	.166	.167	.168	.169
92.0	.160	.161	.162	.164	.165	.166	.167	.168	.169	.170
92.5	.161	.163	.164	.165	.166	.167	.168	.169	.171	.172
93.0	−0.163	−0.164	−0.165	−0.166	−0.167	−0.168	−0.170	−0.171	−0.172	−0.173
93.5	.164	.165	.166	.167	.169	.170	.171	.172	.173	.174
94.0	.165	.166	.168	.169	.170	.171	.172	.173	.175	.176
94.5	.166	.168	.169	.170	.171	.172	.174	.175	.176	.177
95.0	.168	.169	.170	.171	.172	.174	.175	.176	.177	.178
95.5	−0.169	−0.170	−0.171	−0.173	−0.174	−0.175	−0.176	−0.177	−0.179	−0.180
96.0	.170	.171	.173	.174	.175	.176	.177	.179	.180	.181
96.5	.171	.173	.174	.175	.176	.178	.179	.180	.181	.182
97.0	.173	.174	.175	.176	.178	.179	.180	.181	.183	.184
97.5	.174	.175	.176	.178	.179	.180	.181	.183	.184	.185
98.0	−0.175	−0.176	−0.178	−0.179	−0.180	−0.181	−0.183	−0.184	−0.185	−0.186
98.5	.176	.178	.179	.180	.181	.183	.184	.185	.187	.188
99.0	.178	.179	.180	.182	.183	.184	.185	.187	.188	.189
99.5	.179	.180	.182	.183	.184	.185	.187	.188	.189	.190
100.0	.180	.182	.183	.184	.185	.187	.188	.189	.191	.192

TABLE 46.

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	29.8	30.0	30.2	30.4	30.6	30.8	31.0	31.2	31.4	31.6
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
0°.0	+0.078	+0.078	+0.079	+0.079	+0.080	+0.080	+0.081	+0.081	+0.082	+0.082
0.5	+0.076	+0.077	+0.077	+0.078	+0.078	+0.079	+0.079	+0.080	+0.080	+0.081
1.0	.075	.076	.076	.077	.077	.078	.078	.079	.079	.080
1.5	.074	.074	.075	.075	.076	.076	.077	.077	.078	.078
2.0	.072	.073	.073	.074	.074	.075	.075	.076	.076	.077
2.5	.071	.071	.072	.072	.073	.073	.074	.074	.075	.075
3.0	+0.070	+0.070	+0.070	+0.071	+0.071	+0.072	+0.072	+0.073	+0.073	+0.074
3.5	.068	.069	.069	.070	.070	.070	.071	.071	.072	.072
4.0	.067	.067	.068	.068	.069	.069	.070	.070	.070	.071
4.5	.065	.066	.066	.067	.067	.068	.068	.069	.069	.069
5.0	.064	.065	.065	.065	.066	.066	.067	.067	.068	.068
5.5	+0.063	+0.063	+0.064	+0.064	+0.064	+0.065	+0.065	+0.066	+0.066	+0.067
6.0	.061	.062	.062	.063	.063	.063	.064	.064	.065	.065
6.5	.060	.060	.061	.061	.062	.062	.062	.063	.063	.064
7.0	.059	.059	.059	.060	.060	.061	.061	.061	.062	.062
7.5	.057	.058	.058	.058	.059	.059	.060	.060	.060	.061
8.0	+0.056	+0.056	+0.057	+0.057	+0.057	+0.058	+0.058	+0.059	+0.059	+0.059
8.5	.055	.055	.055	.056	.056	.056	.057	.057	.058	.058
9.0	.053	.054	.054	.054	.055	.055	.055	.056	.056	.056
9.5	.052	.052	.053	.053	.053	.054	.054	.054	.055	.055
10.0	.051	.051	.051	.052	.052	.052	.053	.053	.053	.054
10.5	+0.049	+0.049	+0.050	+0.050	+0.050	+0.051	+0.051	+0.051	+0.052	+0.052
11.0	.048	.048	.048	.049	.049	.049	.050	.050	.050	.051
11.5	.046	.047	.047	.047	.048	.048	.048	.049	.049	.049
12.0	.045	.045	.046	.046	.046	.047	.047	.047	.048	.048
12.5	.044	.044	.044	.045	.045	.045	.045	.046	.046	.046
13.0	+0.042	+0.043	+0.043	+0.043	+0.044	+0.044	+0.044	+0.044	+0.045	+0.045
13.5	.041	.041	.042	.042	.042	.042	.043	.043	.043	.043
14.0	.040	.040	.040	.040	.041	.041	.041	.042	.042	.042
14.5	.038	.039	.039	.039	.039	.040	.040	.040	.040	.041
15.0	.037	.037	.037	.038	.038	.038	.038	.039	.039	.039
15.5	+0.036	+0.036	+0.036	+0.036	+0.037	+0.037	+0.037	+0.037	+0.037	+0.038
16.0	.034	.034	.035	.035	.035	.035	.036	.036	.036	.036
16.5	.033	.033	.033	.034	.034	.034	.034	.034	.035	.035
17.0	.032	.032	.032	.032	.032	.033	.033	.033	.033	.033
17.5	.030	.030	.031	.031	.031	.031	.031	.032	.032	.032
18.0	+0.029	+0.029	+0.029	+0.029	+0.030	+0.030	+0.030	+0.030	+0.030	+0.031
18.5	.027	.028	.028	.028	.028	.028	.029	.029	.029	.029
19.0	.026	.026	.026	.027	.027	.027	.027	.027	.027	.028
19.5	.025	.025	.025	.025	.025	.026	.026	.026	.026	.026
20.0	.023	.024	.024	.024	.024	.024	.024	.024	.025	.025
20.5	+0.022	+0.022	+0.022	+0.022	+0.023	+0.023	+0.023	+0.023	+0.023	+0.023
21.0	.021	.021	.021	.021	.021	.021	.022	.022	.022	.022
21.5	.019	.019	.020	.020	.020	.020	.020	.020	.020	.020
22.0	.018	.018	.018	.018	.018	.019	.019	.019	.019	.019
22.5	.017	.017	.017	.017	.017	.017	.017	.017	.017	.018
23.0	+0.015	+0.015	+0.015	+0.016	+0.016	+0.016	+0.016	+0.016	+0.016	+0.016
23.5	.014	.014	.014	.014	.014	.014	.014	.015	.015	.015
24.0	.013	.013	.013	.013	.013	.013	.013	.013	.013	.013
24.5	.011	.011	.011	.011	.011	.012	.012	.012	.012	.012
25.0	.010	.010	.010	.010	.010	.010	.010	.010	0.10	.010

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	29.8	30.0	30.2	30.4	30.6	30.8	31.0	31.2	31.4	31.6
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
25°.5	+0.008	+0.009	+0.009	+0.009	+0.009	+0.009	+0.009	+0.009	+0.009	+0.009
26.0	.007	.007	.007	.007	.007	.007	.007	.007	.008	.008
26.5	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
27.0	.004	.004	.004	.005	.005	.005	.005	.005	.005	.005
27.5	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003
28.0	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002	+0.002
28.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29.0	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001
29.5	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002
30.0	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004
30.5	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005
31.0	.006	.006	.006	.007	.007	.007	.007	.007	.007	.007
31.5	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008
32.0	.009	.009	.009	.009	.009	.009	.009	.010	.010	.010
32.5	.010	.011	.011	.011	.011	.011	.011	.011	.011	.011
33.0	−0.012	−0.012	−0.012	−0.012	−0.012	−0.012	−0.012	−0.012	−0.012	−0.013
33.5	.013	.013	.013	.013	.014	.014	.014	.014	.014	.014
34.0	.015	.015	.015	.015	.015	.015	.015	.015	.015	.015
34.5	.016	.016	.016	.016	.016	.016	.017	.017	.017	.017
35.0	.017	.017	.017	.018	.018	.018	.018	.018	.018	.018
35.5	−0.019	−0.019	−0.019	−0.019	−0.019	−0.019	−0.019	−0.019	−0.020	−0.020
36.0	.020	.020	.020	.020	.020	.021	.021	.021	.021	.021
36.5	.021	.021	.022	.022	.022	.022	.022	.022	.022	.023
37.0	.023	.023	.023	.023	.023	.023	.024	.024	.024	.024
37.5	.024	.024	.024	.024	.025	.025	.025	.025	.025	.025
38.0	−0.025	−0.026	−0.026	−0.026	−0.026	−0.026	−0.026	−0.027	−0.027	−0.027
38.5	.027	.027	.027	.027	.027	.028	.028	.028	.028	.028
39.0	.028	.028	.028	.029	.029	.029	.029	.029	.030	.030
39.5	.029	.030	.030	.030	.030	.030	.031	.031	.031	.031
40.0	.031	.031	.031	.031	.032	.032	.032	.032	.032	.033
40.5	−0.032	−0.032	−0.033	−0.033	−0.033	−0.033	−0.033	−0.034	−0.034	−0.034
41.0	.033	.034	.034	.034	.034	.035	.035	.035	.035	.035
41.5	.035	.035	.035	.035	.036	.036	.036	.036	.037	.037
42.0	.036	.036	.037	.037	.037	.037	.038	.038	.038	.038
42.5	.037	.038	.038	.038	.038	.039	.039	.039	.040	.040
43.0	−0.039	−0.039	−0.039	−0.040	−0.040	−0.040	−0.040	−0.041	−0.041	−0.041
43.5	.040	.040	.041	.041	.041	.042	.042	.042	.042	.043
44.0	.042	.042	.042	.042	.043	.043	.043	.043	.044	.044
44.5	.043	.043	.043	.044	.044	.044	.045	.045	.045	.045
45.0	.044	.045	.045	.045	.045	.046	.046	.046	.047	.047
45.5	−0.046	−0.046	−0.046	−0.047	−0.047	−0.047	−0.047	−0.048	−0.048	−0.048
46.0	.047	.047	.048	.048	.048	.049	.049	.049	.049	.050
46.5	.048	.049	.049	.049	.050	.050	.050	.051	.051	.051
47.0	.050	.050	.050	.051	.051	.051	.052	.052	.052	.053
47.5	.051	.051	.052	.052	.052	.053	.053	.053	.054	.054
48.0	−0.052	−0.053	−0.053	−0.053	−0.054	−0.054	−0.054	−0.055	−0.055	−0.055
48.5	.054	.054	.054	.055	.055	.055	.056	.056	.057	.057
49.0	.055	.055	.056	.056	.057	.057	.057	.058	.058	.058
49.5	.056	.057	.057	.058	.058	.058	.059	.059	.059	.060
50.0	.058	.058	.058	.059	.059	.060	.060	.060	.061	.061

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	29.8	30.0	30.2	30.4	30.6	30.8	31.0	31.2	31.4	31.6
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
50°.5	−0.059	−0.059	−0.060	−0.060	−0.061	−0.061	−0.061	−0.062	−0.062	−0.063
51.0	.060	.061	.061	.062	.062	.062	.063	.063	.064	.064
51.5	.062	.062	.063	.063	.063	.064	.064	.065	.065	.065
52.0	.063	.064	.064	.064	.065	.065	.066	.066	.066	.067
52.5	.064	.065	.065	.066	.066	.067	.067	.067	.068	.068
53.0	−0.066	−0.066	−0.067	−0.067	−0.068	−0.068	−0.068	−0.069	−0.069	−0.070
53.5	.067	.068	.068	.069	.069	.069	.070	.070	.071	.071
54.0	.068	.069	.069	.070	.070	.071	.071	.072	.072	.073
54.5	.070	.070	.071	.071	.072	.072	.073	.073	.074	.074
55.0	.071	.072	.072	.073	.073	.074	.074	.075	.075	.075
55.5	−0.073	−0.073	−0.074	−0.074	−0.074	−0.075	−0.075	−0.076	−0.076	−0.077
56.0	.074	.074	.075	.075	.076	.076	.077	.077	.078	.078
56.5	.075	.076	.076	.077	.077	.078	.078	.079	.079	.080
57.0	.077	.077	.078	.078	.079	.079	.080	.080	.081	.081
57.5	.078	.078	.079	.079	.080	.081	.081	.082	.082	.083
58.0	−0.079	−0.080	−0.080	−0.081	−0.081	−0.082	−0.082	−0.083	−0.084	−0.084
58.5	.081	.081	.082	.082	.083	.083	.084	.084	.085	.085
59.0	.082	.083	.083	.084	.084	.085	.085	.086	.086	.087
59.5	.083	.084	.084	.085	.086	.086	.087	.087	.088	.088
60.0	.085	.085	.086	.086	.087	.087	.088	.089	.089	.090
60.5	−0.086	−0.087	−0.087	−0.088	−0.088	−0.089	−0.089	−0.090	−0.091	−0.091
61.0	.087	.088	.089	.089	.090	.090	.091	.091	.092	.093
61.5	.089	.089	.090	.090	.091	.092	.092	.093	.093	.094
62.0	.090	.091	.091	.092	.092	.093	.094	.094	.095	.095
62.5	.091	.092	.093	.093	.094	.094	.095	.096	.096	.097
63.0	−0.093	−0.093	−0.094	−0.095	−0.095	−0.096	−0.096	−0.097	−0.098	−0.098
63.5	.094	.095	.095	.096	.097	.097	.098	.098	.099	.100
64.0	.095	.096	.097	.097	.098	.099	.099	.100	.101	.101
64.5	.097	.097	.098	.099	.099	.100	.101	.101	.102	.103
65.0	.098	.099	.099	.100	.101	.101	.102	.103	.103	.104
65.5	−0.099	−0.100	−0.101	−0.101	−0.102	−0.103	−0.103	−0.104	−0.105	−0.105
66.0	.101	.101	.102	.103	.103	.104	.105	.106	.106	.107
66.5	.102	.103	.103	.104	.105	.106	.106	.107	.108	.108
67.0	.103	.104	.105	.106	.106	.107	.108	.108	.109	.110
67.5	.105	.106	.106	.107	.108	.108	.109	.110	.110	.111
68.0	−0.106	−0.107	−0.108	−0.108	−0.109	−0.110	−0.110	−0.111	−0.112	−0.113
68.5	.107	.108	.109	.110	.110	.111	.112	.113	.113	.114
69.0	.109	.110	.110	.111	.112	.112	.113	.114	.115	.115
69.5	.110	.111	.112	.112	.113	.114	.115	.115	.116	.117
70.0	.112	.112	.113	.114	.115	.115	.116	.117	.117	.118
70.5	−0.113	−0.114	−0.114	−0.115	−0.116	−0.117	−0.117	−0.118	−0.119	−0.120
71.0	.114	.115	.116	.116	.117	.118	.119	.120	.120	.121
71.5	.116	.116	.117	.118	.119	.119	.120	.121	.122	.123
72.0	.117	.118	.118	.119	.120	.121	.122	.122	.123	.124
72.5	.118	.119	.120	.121	.121	.122	.123	.124	.125	.125
73.0	−0.120	−0.120	−0.121	−0.122	−0.123	−0.124	−0.124	−0.125	−0.126	−0.127
73.5	.121	.122	.123	.123	.124	.125	.126	.127	.127	.128
74.0	.122	.123	.124	.125	.126	.126	.127	.128	.129	.130
74.5	.124	.124	.125	.126	.127	.128	.129	.129	.130	.131
75.0	.125	.126	.127	.127	.128	.129	.130	.131	.132	.132

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

ENGLISH MEASURES.

Attached Thermometer Fahrenheit.	HEIGHT OF THE BAROMETER IN INCHES.									
	29.8	30.0	30.2	30.4	30.6	30.8	31.0	31.2	31.4	31.6
F.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
75°.5	−0.126	−0.127	−0.128	−0.129	−0.130	−0.131	−0.131	−0.132	−0.133	−0.134
76.0	.128	.128	.129	.130	.131	.132	.133	.134	.134	.135
76.5	.129	.130	.131	.132	.132	.133	.134	.135	.136	.137
77.0	.130	.131	.132	.133	.134	.135	.136	.136	.137	.138
77.5	.132	.133	.133	.134	.135	.136	.137	.138	.139	.140
78.0	−0.133	−0.134	−0.135	−0.136	−0.137	−0.137	−0.138	−0.139	−0.140	−0.141
78.5	.134	.135	.136	.137	.138	.139	.140	.141	.142	.142
79.0	.136	.137	.137	.138	.139	.140	.141	.142	.143	.144
79.5	.137	.138	.139	.140	.141	.142	.143	.143	.144	.145
80.0	.138	.139	.140	.141	.142	.143	.144	.145	.146	.147
80.5	−0.140	−0.141	−0.142	−0.142	−0.143	−0.144	−0.145	−0.146	−0.147	−0.148
81.0	.141	.142	.143	.144	.145	.146	.147	.148	.149	.150
81.5	.142	.143	.144	.145	.146	.147	.148	.149	.150	.151
82.0	.144	.145	.146	.147	.148	.149	.149	.150	.151	.152
82.5	.145	.146	.147	.148	.149	.150	.151	.152	.153	.154
83.0	−0.146	−0.147	−0.148	−0.149	−0.150	−0.151	−0.152	−0.153	−0.154	−0.155
83.5	.148	.149	.150	.151	.152	.153	.154	.155	.156	.157
84.0	.149	.150	.151	.152	.153	.154	.155	.156	.157	.158
84.5	.150	.151	.152	.153	.154	.155	.156	.157	.158	.159
85.0	.152	.153	.154	.155	.156	.157	.158	.159	.160	.161
85.5	−0.153	−0.154	−0.155	−0.156	−0.157	−0.158	−0.159	−0.160	−0.161	−0.162
86.0	.154	.155	.156	.158	.159	.160	.161	.162	.163	.164
86.5	.156	.157	.158	.159	.160	.161	.162	.163	.164	.165
87.0	.157	.158	.159	.160	.161	.162	.163	.164	.166	.167
87.5	.158	.159	.161	.162	.163	.164	.165	.166	.167	.168
88.0	−0.160	−0.161	−0.162	−0.163	−0.164	−0.165	−0.166	−0.167	−0.168	−0.169
88.5	.161	.162	.163	.164	.165	.166	.168	.169	.170	.171
89.0	.162	.164	.165	.166	.167	.168	.169	.170	.171	.172
89.5	.164	.165	.166	.167	.168	.169	.170	.171	.173	.174
90.0	.165	.166	.167	.168	.170	.171	.172	.173	.174	.175
90.5	−0.166	−0.168	−0.169	−0.170	−0.171	−0.172	−0.173	−0.174	−0.175	−0.176
91.0	.168	.169	.170	.171	.172	.173	.175	.176	.177	.178
91.5	.169	.170	.171	.173	.174	.175	.176	.177	.178	.179
92.0	.170	.172	.173	.174	.175	.176	.177	.178	.180	.181
92.5	.172	.173	.174	.175	.176	.178	.179	.180	.181	.182
93.0	−0.173	−0.174	−0.175	−0.177	−0.178	−0.179	−0.180	−0.181	−0.182	−0.184
93.5	.174	.176	.177	.178	.179	.180	.181	.183	.184	.185
94.0	.176	.177	.178	.179	.180	.182	.183	.184	.185	.186
94.5	.177	.178	.179	.181	.182	.183	.184	.185	.187	.188
95.0	.178	.180	.181	.182	.183	.184	.186	.187	.188	.189
95.5	−0.180	−0.181	−0.182	−0.183	−0.185	−0.186	−0.187	−0.188	−0.189	−0.191
96.0	.181	.182	.184	.185	.186	.187	.188	.190	.191	.192
96.5	.182	.184	.185	.186	.187	.189	.190	.191	.192	.193
97.0	.184	.185	.186	.187	.189	.190	.191	.192	.194	.195
97.5	.185	.186	.188	.189	.190	.191	.193	.194	.195	.196
98.0	−0.186	−0.188	−0.189	−0.190	−0.191	−0.193	−0.194	−0.195	−0.196	−0.198
98.5	.188	.189	.190	.192	.193	.194	.195	.197	.198	.199
99.0	.189	.190	.192	.193	.194	.195	.197	.198	.199	.201
99.5	.190	.192	.193	.194	.196	.197	.198	.199	.201	.202
100.0	.192	.193	.194	.196	.197	.198	.200	.201	.202	.203

TABLE 47.

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION TO BE SUBTRACTED.

Attached Thermometer Centigrade.	HEIGHT OF THE BAROMETER IN MILLIMETERS.												
	440	450	460	470	480	490	500	510	520	530	540	550	560
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05
1.0	.07	.07	.08	.08	.08	.08	.08	.08	.08	.09	.09	.09	.09
1.5	.11	.11	.11	.12	.12	.12	.12	.12	.13	.13	.13	.13	.14
2.0	.14	.15	.15	.15	.16	.16	.16	.17	.17	.17	.18	.18	.18
2.5	0.18	0.18	0.19	0.19	0.20	0.20	0.20	0.21	0.21	0.22	0.22	0.22	0.23
3.0	.22	.22	.23	.23	.24	.24	.24	.25	.25	.26	.26	.27	.27
3.5	.25	.26	.26	.27	.27	.28	.29	.29	.30	.30	.31	.31	.32
4.0	.29	.29	.30	.31	.31	.32	.33	.33	.34	.35	.35	.36	.37
4.5	.32	.33	.34	.35	.35	.36	.37	.37	.38	.39	.40	.40	.41
5.0	0.36	0.37	0.38	0.38	0.39	0.40	0.41	0.42	0.42	0.43	0.44	0.45	0.46
5.5	.40	.40	.41	.42	.43	.44	.45	.46	.47	.48	.48	.49	.50
6.0	.43	.44	.45	.46	.47	.48	.49	.50	.51	.52	.53	.54	.55
6.5	.47	.48	.49	.50	.51	.52	.53	.54	.55	.56	.57	.58	.59
7.0	.50	.51	.53	.54	.55	.56	.57	.58	.59	.61	.62	.63	.64
7.5	0.54	0.55	0.56	0.58	0.59	0.60	0.61	0.62	0.64	0.65	0.66	0.67	0.69
8.0	.57	.59	.60	.61	.63	.64	.65	.67	.68	.69	.70	.72	.73
8.5	.61	.62	.64	.65	.67	.68	.69	.71	.72	.73	.75	.76	.78
9.0	.65	.66	.68	.69	.70	.72	.73	.75	.76	.78	.79	.81	.82
9.5	.68	.70	.71	.73	.74	.76	.77	.79	.81	.82	.84	.85	.87
10.0	0.72	0.73	0.75	0.77	0.78	0.80	0.82	0.83	0.85	0.86	0.88	0.90	0.91
10.5	.75	.77	.79	.80	.82	.84	.86	.87	.89	.91	.92	.94	.96
11.0	.79	.81	.83	.84	.86	.88	.90	.91	.93	.95	.97	.99	1.00
11.5	.83	.84	.86	.88	.90	.92	.94	.96	.98	.99	1.01	1.03	1.05
12.0	.86	.88	.90	.92	.94	.96	.98	1.00	1.02	1.04	1.06	1.08	1.10
13.0	0.93	0.95	0.97	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.17	1.19
14.0	1.00	1.03	1.05	1.07	1.10	1.12	1.14	1.16	1.19	1.21	1.23	1.25	1.28
15.0	1.08	1.10	1.12	1.15	1.17	1.20	1.22	1.25	1.27	1.30	1.32	1.34	1.37
16.0	1.15	1.17	1.20	1.23	1.25	1.28	1.30	1.33	1.36	1.38	1.41	1.43	1.46
17.0	1.22	1.25	1.27	1.30	1.33	1.36	1.38	1.41	1.44	1.47	1.50	1.52	1.55
18.0	1.29	1.32	1.35	1.38	1.41	1.44	1.47	1.50	1.52	1.55	1.58	1.61	1.64
19.0	1.36	1.39	1.42	1.45	1.49	1.52	1.55	1.58	1.61	1.64	1.67	1.70	1.73
20.0	1.43	1.47	1.50	1.53	1.56	1.60	1.63	1.66	1.69	1.73	1.76	1.79	1.82
21.0	1.50	1.54	1.57	1.61	1.64	1.67	1.71	1.74	1.78	1.81	1.85	1.88	1.91
22.0	1.58	1.61	1.65	1.68	1.72	1.75	1.79	1.83	1.86	1.90	1.93	1.97	2.01
23.0	1.65	1.68	1.72	1.76	1.80	1.83	1.87	1.91	1.95	1.98	2.02	2.06	2.10
24.0	1.72	1.76	1.80	1.84	1.87	1.91	1.95	1.99	2.03	2.07	2.11	2.15	2.19
25.0	1.79	1.83	1.87	1.91	1.95	1.99	2.03	2.07	2.11	2.16	2.20	2.24	2.28
26.0	1.86	1.90	1.95	1.99	2.03	2.07	2.11	2.16	2.20	2.24	2.28	2.33	2.37
27.0	1.93	1.98	2.02	2.06	2.11	2.15	2.20	2.24	2.28	2.33	2.37	2.41	2.46
28.0	2.00	2.05	2.09	2.14	2.18	2.23	2.28	2.32	2.37	2.41	2.46	2.50	2.55
29.0	2.07	2.12	2.17	2.22	2.26	2.31	2.36	2.40	2.45	2.50	2.55	2.59	2.64
30.0	2.15	2.19	2.24	2.29	2.34	2.39	2.44	2.49	2.54	2.58	2.63	2.68	2.73
31.0	2.22	2.27	2.32	2.37	2.42	2.47	2.52	2.57	2.62	2.67	2.72	2.77	2.82
32.0	2.29	2.34	2.39	2.44	2.50	2.55	2.60	2.65	2.70	2.76	2.81	2.86	2.91
33.0	2.36	2.41	2.47	2.52	2.57	2.63	2.68	2.73	2.79	2.84	2.89	2.95	3.00
34.0	2.43	2.48	2.54	2.60	2.65	2.71	2.76	2.82	2.87	2.93	2.98	3.04	3.09
35.0	2.50	2.55	2.61	2.67	2.73	2.78	2.84	2.90	2.96	3.01	3.07	3.13	3.18

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 560 mm.					HEIGHT OF THE BAROMETER 570 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.05	0.07	0.00	0.02	0.04	0.06	0.07
1	.09	.11	.13	.15	.16	.09	.11	.13	.15	.17
2	.18	.20	.22	.24	.26	.19	.20	.22	.24	.26
3	.27	.29	.31	.33	.35	.28	.30	.32	.34	.35
4	.37	.38	.40	.42	.44	.37	.39	.41	.43	.45
5	0.46	0.48	0.49	0.51	0.53	0.47	0.48	0.50	0.52	0.54
6	.55	.57	.58	.60	.62	.56	.58	.60	.61	.63
7	.64	.66	.68	.69	.71	.65	.67	.69	.71	.73
8	.73	.75	.77	.79	.80	.74	.76	.78	.80	.82
9	.82	.84	.86	.88	.90	.84	.86	.87	.89	.91
10	0.91	0.93	0.95	0.97	0.99	0.93	0.95	0.97	0.99	1.00
11	1.00	1.02	1.04	1.06	1.08	1.02	1.04	1.06	1.08	1.10
12	1.10	1.11	1.13	1.15	1.17	1.12	1.13	1.15	1.17	1.19
13	1.19	1.20	1.22	1.24	1.26	1.21	1.23	1.25	1.26	1.28
14	1.28	1.30	1.31	1.33	1.35	1.30	1.32	1.34	1.36	1.37
15	1.37	1.39	1.41	1.42	1.44	1.39	1.41	1.43	1.45	1.47
16	1.46	1.48	1.50	1.51	1.53	1.49	1.50	1.52	1.54	1.56
17	1.55	1.57	1.59	1.61	1.62	1.58	1.60	1.62	1.63	1.65
18	1.64	1.66	1.68	1.70	1.71	1.67	1.69	1.71	1.73	1.75
19	1.73	1.75	1.77	1.79	1.81	1.76	1.78	1.80	1.82	1.84
20	1.82	1.84	1.86	1.88	1.90	1.86	1.87	1.89	1.91	1.93
21	1.91	1.93	1.95	1.97	1.99	1.95	1.97	1.99	2.00	2.02
22	2.01	2.02	2.04	2.06	2.08	2.04	2.06	2.08	2.10	2.11
23	2.10	2.11	2.13	2.15	2.17	2.13	2.15	2.17	2.19	2.21
24	2.19	2.20	2.22	2.24	2.26	2.23	2.24	2.26	2.28	2.30
25	2.28	2.30	2.31	2.33	2.35	2.32	2.34	2.35	2.37	2.39
26	2.37	2.39	2.40	2.42	2.44	2.41	2.43	2.45	2 47	2.48
27	2.46	2.48	2.49	2.51	2.53	2.50	2.52	2.54	2.56	2.58
28	2.55	2.57	2.59	2.60	2.62	2.59	2.61	2.63	2.65	2.67
29	2.64	2.66	2.68	2.69	2.71	2.69	2.71	2.72	2.74	2.76
30	2.73	2.75	2.77	2.78	2.80	2.78	2.80	2.82	2.83	2.85
31	2.82	2.84	2.86	2.87	2.89	2.87	2.89	2.91	2.93	2.94
32	2.91	2.93	2.95	2.97	2.98	2.96	2.98	3.00	3.02	3.04
33	3.00	3.02	3.04	3.06	3.07	3.06	3.07	3.09	3.11	3.13
34	3.09	3.11	3.13	3.15	3.16	3.15	3.17	3.18	3.20	3.22
35	3.18	3.20	3.22	3.24	3.25	3.24	3.26	3.28	3.29	3.31

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 580 mm.					HEIGHT OF THE BAROMETER 590 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.06	0.08	0.00	0.02	0.04	0.06	0.08
1	.09	.11	.13	.15	.17	.10	.12	.13	.15	.17
2	.19	.21	.23	.25	.27	.19	.21	.23	.25	.27
3	.28	.30	.32	.34	.36	.29	.31	.33	.35	.37
4	.38	.40	.42	.44	.45	.39	.40	.42	.44	.46
5	0.47	0.49	0.51	0.53	0.55	0.48	0.50	0.52	0.54	0.56
6	.57	.59	.61	.62	.64	.58	.60	.62	.64	.65
7	.66	.68	.70	.72	.74	.67	.69	.71	.73	.75
8	.76	.78	.79	.81	.83	.77	.79	.81	.83	.85
9	.85	.87	.89	.91	.93	.87	.89	.90	.92	.94
10	0.95	0.96	0.98	1.00	1.02	0.96	0.98	1.00	1.02	1.04
11	1.04	1.06	1.08	1.10	1.12	1.06	1.08	1.10	1.12	1.14
12	1.13	1.15	1.17	1.19	1.21	1.15	1.17	1.19	1.21	1.23
13	1.23	1.25	1.27	1.29	1.30	1.25	1.27	1.29	1.31	1.33
14	1.32	1.34	1.36	1.38	1.40	1.35	1.37	1.38	1.40	1.42
15	1.42	1.44	1.46	1.47	1.49	1.44	1.46	1.48	1.50	1.52
16	1.51	1.53	1.55	1.57	1.59	1.54	1.56	1.58	1.60	1.61
17	1.61	1.62	1.64	1.66	1.68	1.63	1.65	1.67	1.69	1.71
18	1.70	1.72	1.74	1.76	1.78	1.73	1.75	1.77	1.79	1.81
19	1.79	1.81	1.83	1.85	1.87	1.83	1.84	1.86	1.88	1.90
20	1.89	1.91	1.93	1.95	1.96	1.92	1.94	1.96	1.98	2.00
21	1.98	2.00	2.02	2.04	2.06	2.02	2.04	2.06	2.07	2.09
22	2.08	2.10	2.11	2.13	2.15	2.11	2.13	2.15	2.17	2.19
23	2.17	2.19	2.21	2.23	2.25	2.21	2.23	2.25	2.27	2.28
24	2.26	2.28	2.30	2.32	2.34	2.30	2.32	2.34	2.36	2.38
25	2.36	2.38	2.40	2.41	2.43	2.40	2.42	2.44	2.46	2.48
26	2.45	2.47	2.49	2.51	2.53	2.49	2.51	2.53	2.55	2.57
27	2.55	2.57	2.58	2.60	2.62	2.59	2.61	2.63	2.65	2.67
28	2.64	2.66	2.68	2.70	2.72	2.69	2.70	2.72	2.74	2.76
29	2.73	2.75	2.77	2.79	2.81	2.78	2.80	2.82	2.84	2.86
30	2.83	2.85	2.87	2.88	2.90	2.88	2.90	2.91	2.93	2.95
31	2.92	2.94	2.96	2.98	3.00	2.97	2.99	3.01	3.03	3.05
32	3.02	3.03	3.05	3.07	3.09	3.07	3.09	3.11	3.12	3.14
33	3.11	3.13	3.15	3.16	3.18	3.16	3.18	3.20	3.22	3.24
34	3.20	3.22	3.24	3.26	3.28	3.26	3.28	3.30	3.31	3.33
35	3.30	3.31	3.33	3.35	3.37	3.35	3.37	3.39	3.41	3.43

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	Height of the barometer 600 mm.					Height of the barometer 605 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.06	0.08	0.00	0.02	0.04	0.06	0.08
1	.10	.12	.14	.16	.18	.10	.12	.14	.16	.18
2	.20	.22	.24	.25	.27	.20	.22	.24	.26	.28
3	.29	.31	.33	.35	.37	.30	.32	.34	.36	.38
4	.39	.41	.43	.45	.47	.40	.41	.43	.45	.47
5	0.49	0.51	0.53	0.55	0.57	0.49	0.51	0.53	0.55	0.57
6	.59	.61	.63	.65	.67	.59	.61	.63	.65	.67
7	.69	.70	.72	.74	.76	.69	.71	.73	.75	.77
8	.78	.80	.82	.84	.86	.79	.81	.83	.85	.87
9	.88	.90	.92	.94	.96	.89	.91	.93	.95	.97
10	0.98	1.00	1.02	1.04	1.06	0.99	1.01	1.03	1.05	1.07
11	1.08	1.10	1.12	1.13	1.15	1.09	1.10	1.12	1.14	1.16
12	1.17	1.19	1.21	1.23	1.25	1.18	1.20	1.22	1.24	1.26
13	1.27	1.29	1.31	1.33	1.35	1.28	1.30	1.32	1.34	1.36
14	1.37	1.39	1.41	1.43	1.45	1.38	1.40	1.42	1.44	1.46
15	1.47	1.49	1.51	1.53	1.54	1.48	1.50	1.52	1.54	1.56
16	1.56	1.58	1.60	1.62	1.64	1.58	1.60	1.62	1.64	1.66
17	1.66	1.68	1.70	1.72	1.74	1.68	1.70	1.71	1.73	1.75
18	1.76	1.78	1.80	1.82	1.84	1.77	1.79	1.81	1.83	1.85
19	1.86	1.88	1.90	1.91	1.93	1.87	1.89	1.91	1.93	1.95
20	1.95	1.97	1.99	2.01	2.03	1.97	1.99	2.01	2.03	2.05
21	2.05	2.07	2.09	2.11	2.13	2.07	2.09	2.11	2.13	2.15
22	2.15	2.17	2.19	2.21	2.23	2.17	2.19	2.21	2.23	2.24
23	2.25	2.26	2.28	2.30	2.32	2.26	2.28	2.30	2.32	2.34
24	2.34	2.36	2.38	2.40	2.42	2.36	2.38	2.40	2.42	2.44
25	2.44	2.46	2.48	2.50	2.52	2.46	2.48	2.50	2.52	2.54
26	2.54	2.56	2.58	2.60	2.61	2.56	2.58	2.60	2.62	2.64
27	2.63	2.65	2.67	2.69	2.71	2.66	2.68	2.70	2.71	2.73
28	2.73	2.75	2.77	2.79	2.81	2.75	2.77	2.79	2.81	2.83
29	2.83	2.85	2.87	2.89	2.91	2.85	2.87	2.89	2.91	2.93
30	2.93	2.94	2.96	2.98	3.00	2.95	2.97	2.99	3.01	3.03
31	3.02	3.04	3.06	3.08	3.10	3.05	3.07	3.09	3.11	3.13
32	3.12	3.14	3.16	3.18	3.20	3.15	3.16	3.18	3.20	3.22
33	3.22	3.24	3.25	3.27	3.29	3.24	3.26	3.28	3.30	3.32
34	3.31	3.33	3.35	3.37	3.39	3.34	3.36	3.38	3.40	3.42
35	3.41	3.43	3.45	3.47	3.49	3.44	3.46	3.48	3.50	3.52

TABLE 47.

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 610 mm.					HEIGHT OF THE BAROMETER 615 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.06	0.08	0.00	0.02	0.04	0.06	0.08
1	.10	.12	.14	.16	.18	.10	.12	.14	.16	.18
2	.20	.22	.24	.26	.28	.20	.22	.24	.26	.28
3	.30	.32	.34	.36	.38	.30	.32	.34	.36	.38
4	.40	.42	.44	.46	.48	.40	.42	.44	.46	.48
5	0.50	0.52	0.54	0.56	0.58	0.50	0.52	0.54	0.56	0.58
6	.60	.62	.64	.66	.68	.60	.62	.64	.66	.68
7	.70	.72	.74	.76	.78	.70	.72	.74	.76	.78
8	.80	.82	.84	.86	.88	.80	.82	.84	.86	.88
9	.90	.92	.94	.96	.98	.90	.92	.94	.96	.98
10	0.99	1.01	1.03	1.05	1.07	1.00	1.02	1.04	1.06	1.08
11	1.09	1.11	1.13	1.15	1.17	1.10	1.12	1.14	1.16	1.18
12	1.19	1.21	1.23	1.25	1.27	1.20	1.22	1.24	1.26	1.28
13	1.29	1.31	1.33	1.35	1.37	1.30	1.32	1.34	1.36	1.38
14	1.39	1.41	1.43	1.45	1.47	1.40	1.42	1.44	1.46	1.48
15	1.49	1.51	1.53	1.55	1.57	1.50	1.52	1.54	1.56	1.58
16	1.59	1.61	1.63	1.65	1.67	1.60	1.62	1.64	1.66	1.68
17	1.69	1.71	1.73	1.75	1.77	1.70	1.72	1.74	1.76	1.78
18	1.79	1.81	1.83	1.85	1.87	1.80	1.82	1.84	1.86	1.88
19	1.89	1.91	1.93	1.95	1.97	1.90	1.92	1.94	1.96	1.98
20	1.99	2.01	2.03	2.05	2.07	2.00	2.02	2.04	2.06	2.08
21	2.09	2.10	2.12	2.14	2.16	2.10	2.12	2.14	2.16	2.18
22	2.18	2.20	2.22	2.24	2.26	2.20	2.22	2.24	2.26	2.28
23	2.28	2.30	2.32	2.34	2.36	2.30	2.32	2.34	2.36	2.38
24	2.38	2.40	2.42	2.44	2.46	2.40	2.42	2.44	2.46	2.48
25	2.48	2.50	2.52	2.54	2.56	2.50	2.52	2.54	2.56	2.58
26	2.58	2.60	2.62	2.64	2.66	2.60	2.62	2.64	2.66	2.68
27	2.68	2.70	2.72	2.74	2.76	2.70	2.72	2.74	2.76	2.78
28	2.78	2.80	2.82	2.84	2.86	2.80	2.82	2.84	2.86	2.88
29	2.88	2.90	2.91	2.93	2.95	2.90	2.92	2.94	2.96	2.98
30	2.97	2.99	3.01	3.03	3.05	3.00	3.02	3.04	3.06	3.08
31	3.07	3.09	3.11	3.13	3.15	3.10	3.12	3.14	3.16	3.18
32	3.17	3.19	3.21	3.23	3.25	3.20	3.22	3.24	3.26	3.28
33	3.27	3.29	3.31	3.33	3.35	3.30	3.32	3.34	3.36	3.38
34	3.37	3.39	3.41	3.43	3.45	3.40	3.42	3.44	3.46	3.48
35	3.47	3.49	3.51	3.53	3.55	3.49	3.51	3.53	3.55	3.57

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	Height of the Barometer 620 mm.					Height of the Barometer 625 mm.				
Attached Thermometer.	0°0	0°2	0°4	0°6	0°8	0°0	0°2	0°4	0°6	0°8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.06	0.08	0.00	0.02	0.04	0.06	0.08
1	.10	.12	.14	.16	.18	.10	.12	.14	.16	.18
2	.20	.22	.24	.26	.28	.20	.22	.24	.27	.29
3	.30	.32	.34	.36	.38	.31	.33	.35	.37	.39
4	.40	.43	.45	.47	.49	.41	.43	.45	.47	.49
5	0.51	0.53	0.55	0.57	0.59	0.51	0.53	0.55	0.57	0.59
6	.61	.63	.65	.67	.69	.61	.63	.65	.67	.69
7	.71	.73	.75	.77	.79	.71	.73	.75	.78	.80
8	.81	.83	.85	.87	.89	.82	.84	.86	.88	.90
9	.91	.93	.95	.97	.99	.92	.94	.96	.98	1.00
10	1.01	1.03	1.05	1.07	1.09	1.02	1.04	1.06	1.08	1.10
11	1.11	1.13	1.15	1.17	1.19	1.12	1.14	1.16	1.18	1.20
12	1.21	1.23	1.25	1.27	1.29	1.22	1.24	1.26	1.28	1.30
13	1.31	1.33	1.35	1.37	1.39	1.32	1.34	1.37	1.39	1.41
14	1.41	1.43	1.46	1.48	1.50	1.43	1.45	1.47	1.49	1.51
15	1.52	1.54	1.56	1.58	1.60	1.53	1.55	1.57	1.59	1.61
16	1.62	1.64	1.66	1.68	1.70	1.63	1.65	1.67	1.69	1.71
17	1.72	1.74	1.76	1.78	1.80	1.73	1.75	1.77	1.79	1.81
18	1.82	1.84	1.86	1.88	1.90	1.83	1.85	1.87	1.89	1.91
19	1.92	1.94	1.96	1.98	2.00	1.93	1.95	1.97	1.99	2.01
20	2.02	2.04	2.06	2.08	2.10	2.04	2.06	2.08	2.10	2.12
21	2.12	2.14	2.16	2.18	2.20	2.14	2.16	2.18	2.20	2.22
22	2.22	2.24	2.26	2.28	2.30	2.24	2.26	2.28	2.30	2.32
23	2.32	2.34	2.36	2.38	2.40	2.34	2.36	2.38	2.40	2.42
24	2.42	2.44	2.46	2.48	2.50	2.44	2.46	2.48	2.50	2.52
25	2.52	2.54	2.56	2.58	2.60	2.54	2.56	2.58	2.60	2.62
26	2.62	2.64	2.66	2.68	2.70	2.64	2.66	2.68	2.70	2.72
27	2.72	2.74	2.76	2.78	2.80	2.74	2.76	2.78	2.80	2.82
28	2.82	2.84	2.86	2.88	2.90	2.85	2.87	2.89	2.91	2.93
29	2.92	2.94	2.96	2.98	3.00	2.95	2.97	2.99	3.01	3.03
30	3.02	3.04	3.06	3.08	3.10	3.05	3.07	3.09	3.11	3.13
31	3.12	3.14	3.16	3.18	3.20	3.15	3.17	3.19	3.21	3.23
32	3.22	3.24	3.26	3.28	3.30	3.25	3.27	3.29	3.31	3.33
33	3.32	3.34	3.36	3.38	3.40	3.35	3.37	3.39	3.41	3.43
34	3.42	3.44	3.46	3.48	3.50	3.45	3.47	3.49	3.51	3.53
35	3.52	3.54	3.56	3.58	3.60	3.55	3.57	3.59	3.61	3.63

TABLE 47.

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED

	HEIGHT OF THE BAROMETER 630 mm.					HEIGHT OF THE BAROMETER 635 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.06	0.08	0.00	0.02	0.04	0.06	0.08
1	.10	.12	.14	.16	.19	.10	.12	.15	.17	.19
2	.21	.23	.25	.27	.29	.21	.23	.25	.27	.29
3	.31	.33	.35	.37	.39	.31	.33	.35	.37	.39
4	.41	.43	.45	.47	.49	.41	.44	.46	.48	.50
5	0.51	0.53	0.56	0.58	0.60	0.52	0.54	0.56	0.58	0.60
6	.62	.64	.66	.68	.70	.62	.64	.66	.68	.70
7	.72	.74	.76	.78	.80	.73	.75	.77	.79	.81
8	.82	.84	.86	.88	.90	.83	.85	.87	.89	.91
9	.92	.95	.97	.99	1.01	.93	.95	.97	.99	1.02
10	1.03	1.05	1.07	1.09	1.11	1.04	1.06	1.08	1.10	1.12
11	1.13	1.15	1.17	1.19	1.21	1.14	1.16	1.18	1.20	1.22
12	1.23	1.25	1.27	1.29	1.31	1.24	1.26	1.28	1.30	1.33
13	1.34	1.36	1.38	1.40	1.42	1.35	1.37	1.39	1.41	1.43
14	1.44	1.46	1.48	1.50	1.52	1.45	1.47	1.49	1.51	1.53
15	1.54	1.56	1.58	1.60	1.62	1.55	1.57	1.59	1.61	1.63
16	1.64	1.66	1.68	1.70	1.72	1.66	1.68	1.70	1.72	1.74
17	1.74	1.77	1.79	1.81	1.83	1.76	1.78	1.80	1.82	1.84
18	1.85	1.87	1.89	1.91	1.93	1.86	1.88	1.90	1.92	1.94
19	1.95	1.97	1.99	2.01	2.03	1.96	1.99	2.01	2.03	2.05
20	2.05	2.07	2.09	2.11	2.13	2.07	2.09	2.11	2.13	2.15
21	2.15	2.17	2.19	2.21	2.24	2.17	2.19	2.21	2.23	2.25
22	2.26	2.28	2.30	2.32	2.34	2.27	2.29	2.31	2.34	2.36
23	2.36	2.38	2.40	2.42	2.44	2.38	2.40	2.42	2.44	2.46
24	2.46	2.48	2.50	2.52	2.54	2.48	2.50	2.52	2.54	2.56
25	2.56	2.58	2.60	2.62	2.64	2.58	2.60	2.62	2.64	2.66
26	2.66	2.68	2.70	2.73	2.75	2.69	2.71	2.73	2.75	2.77
27	2.77	2.79	2.81	2.83	2.85	2.79	2.81	2.83	2.85	2.87
28	2.87	2.89	2.91	2.93	2.95	2.89	2.91	2.93	2.95	2.97
29	2.97	2.99	3.01	3.03	3.05	2.99	3.01	3.03	3.05	3.08
30	3.07	3.09	3.11	3.13	3.15	3.10	3.12	3.14	3.16	3.18
31	3.17	3.19	3.21	3.23	3.25	3.20	3.22	3.24	3.26	3.28
32	3.28	3.30	3.32	3.34	3.36	3.30	3.32	3.34	3.36	3.38
33	3.38	3.40	3.42	3.44	3.46	3.40	3.42	3.44	3.47	3.49
34	3.48	3.50	3.52	3.54	3.56	3.51	3.53	3.55	3.57	3.59
35	3.58	3.60	3.62	3.64	3.66	3.61	3.63	3.65	3.67	3.69

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 640 mm.					HEIGHT OF THE BAROMETER 645 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.06	0.08	0.00	0.02	0.04	0.06	0.08
1	.10	.13	.15	.17	.19	.11	.13	.15	.17	.19
2	.21	.23	.25	.27	.29	.21	.23	.25	.27	.29
3	.31	.33	.36	.38	.40	.32	.34	.36	.38	.40
4	.42	.44	.46	.48	.50	.42	.44	.46	.48	.51
5	0.52	0.54	0.56	0.59	0.61	0.53	0.55	0.57	0.59	0.61
6	.63	.65	.67	.69	.71	.63	.65	.67	.69	.72
7	.73	.75	.77	.79	.81	.74	.76	.78	.80	.82
8	.84	.86	.88	.90	.92	.84	.86	.88	.90	.93
9	.94	.96	.98	1.00	1.02	.95	.97	.99	1.01	1.03
10	1.04	1.06	1.09	1.11	1.13	1.05	1.07	1.09	1.12	1.14
11	1.15	1.17	1.19	1.21	1.23	1.16	1.18	1.20	1.22	1.24
12	1.25	1.27	1.29	1.31	1.34	1.26	1.28	1.30	1.32	1.35
13	1.36	1.38	1.40	1.42	1.44	1.37	1.39	1.41	1.43	1.45
14	1.46	1.48	1.50	1.52	1.54	1.47	1.49	1.51	1.53	1.56
15	1.56	1.59	1.61	1.63	1.65	1.58	1.60	1.62	1.64	1.66
16	1.67	1.69	1.71	1.73	1.75	1.68	1.70	1.72	1.74	1.77
17	1.77	1.79	1.81	1.83	1.86	1.79	1.81	1.83	1.85	1.87
18	1.88	1.90	1.92	1.94	1.96	1.89	1.91	1.93	1.95	1.97
19	1.98	2.00	2.02	2.04	2.06	2.00	2.02	2.04	2.06	2.08
20	2.08	2.10	2.13	2.15	2.17	2.10	2.12	2.14	2.16	2.18
21	2.19	2.21	2.23	2.25	2.27	2.20	2.23	2.25	2.27	2.29
22	2.29	2.31	2.33	2.35	2.37	2.31	2.33	2.35	2.37	2.39
23	2.40	2.42	2.44	2.46	2.48	2.41	2.43	2.46	2.48	2.50
24	2.50	2.52	2.54	2.56	2.58	2.52	2.54	2.56	2.58	2.60
25	2.60	2.62	2.64	2.66	2.69	2.62	2.64	2.66	2.69	2.71
26	2.71	2.73	2.75	2.77	2.79	2.73	2.75	2.77	2.79	2.81
27	2.81	2.83	2.85	2.87	2.89	2.83	2.85	2.87	2.89	2.92
28	2.91	2.93	2.95	2.98	3.00	2.94	2.96	2.98	3.00	3.02
29	3.02	3.04	3.06	3.08	3.10	3.04	3.06	3.08	3.10	3.12
30	3.12	3.14	3.16	3.18	3.20	3.14	3.17	3.19	3.21	3.23
31	3.22	3.24	3.27	3.29	3.31	3.25	3.27	3.29	3.31	3.33
32	3.33	3.35	3.37	3.39	3.41	3.35	3.37	3.39	3.42	3.44
33	3.43	3.45	3.47	3.49	3.51	3.46	3.48	3.50	3.52	3.54
34	3.53	3.55	3.58	3.60	3.62	3.56	3.58	3.60	3.62	3.64
35	3.64	3.66	3.68	3.70	3.72	3.67	3.69	3.71	3.73	3.75

TABLE 47.

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	Height of the Barometer 650 mm.					Height of the Barometer 655 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.06	0.08	0.00	0.02	0.04	0.06	0.09
1	.11	.13	.15	.17	.19	.11	.13	.15	.17	.19
2	.21	.23	.25	.28	.30	.21	.24	.26	.28	.30
3	.32	.34	.36	.38	.40	.32	.34	.36	.39	.41
4	.42	.45	.47	.49	.51	.43	.45	.47	.49	.51
5	0.53	0.55	0.57	0.59	0.62	0.53	0.56	0.58	0.60	0.62
6	.64	.66	.68	.70	.72	.64	.66	.68	.71	.73
7	.74	.76	.78	.81	.83	.75	.77	.79	.81	.83
8	.85	.87	.89	.91	.93	.85	.88	.90	.92	.94
9	.95	.98	1.00	1.02	1.04	.96	.98	1.00	1.03	1.05
10	1.06	1.08	1.10	1.12	1.14	1.07	1.09	1.11	1.13	1.15
11	1.17	1.19	1.21	1.23	1.25	1.17	1.20	1.22	1.24	1.26
12	1.27	1.29	1.31	1.34	1.36	1.28	1.30	1.32	1.35	1.37
13	1.38	1.40	1.42	1.44	1.46	1.39	1.41	1.43	1.45	1.47
14	1.48	1.50	1.53	1.55	1.57	1.49	1.52	1.54	1.56	1.58
15	1.59	1.61	1.63	1.65	1.67	1.60	1.62	1.64	1.66	1.69
16	1.69	1.72	1.74	1.76	1.78	1.71	1.73	1.75	1.77	1.79
17	1.80	1.82	1.84	1.86	1.88	1.81	1.84	1.86	1.88	1.90
18	1.91	1.93	1.95	1.97	1.99	1.92	1.94	1.96	1.98	2.01
19	2.01	2.03	2.05	2.07	2.10	2.03	2.05	2.07	2.09	2.11
20	2.12	2.14	2.16	2.18	2.20	2.13	2.15	2.18	2.20	2.22
21	2.22	2.24	2.26	2.29	2.31	2.24	2.26	2.28	2.30	2.32
22	2.33	2.35	2.37	2.39	2.41	2.35	2.37	2.39	2.41	2.43
23	2.43	2.45	2.47	2.50	2.52	2.45	2.47	2.49	2.52	2.54
24	2.54	2.56	2.58	2.60	2.62	2.56	2.58	2.60	2.62	2.64
25	2.64	2.66	2.69	2.71	2.73	2.66	2.68	2.71	2.73	2.75
26	2.75	2.77	2.79	2.81	2.83	2.77	2.79	2.81	2.83	2.85
27	2.85	2.87	2.90	2.92	2.94	2.88	2.90	2.92	2.94	2.96
28	2.96	2.98	3.00	3.02	3.04	2.98	3.00	3.02	3.05	3.07
29	3.06	3.08	3.11	3.13	3.15	3.09	3.11	3.13	3.15	3.17
30	3.17	3.19	3.21	3.23	3.25	3.19	3.21	3.24	3.26	3.28
31	3.27	3.30	3.32	3.34	3.36	3.30	3.32	3.34	3.36	3.38
32	3.38	3.40	3.42	3.44	3.46	3.41	3.43	3.45	3.47	3.49
33	3.48	3.51	3.53	3.55	3.57	3.51	3.53	3.55	3.57	3.60
34	3.59	3.61	3.63	3.65	3.67	3.62	3.64	3.66	3.68	3.70
35	3.69	3.71	3.74	3.76	3.78	3.72	3.74	3.76	3.79	3.81

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 660 mm.					HEIGHT OF THE BAROMETER 665 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.06	0.09	0.00	0.02	0.04	0.07	0.09
1	.11	.13	.15	.17	.19	.11	.13	.15	.17	.20
2	.22	.24	.26	.28	.30	.22	.24	.26	.28	.30
3	.32	.34	.37	.39	.41	.33	.35	.37	.39	.41
4	.43	.45	.47	.50	.52	.43	.46	.48	.50	.52
5	0.54	0.56	0.58	0.60	0.62	0.54	0.56	0.59	0.61	0.63
6	.65	.67	.69	.71	.73	.65	.67	.69	.72	.74
7	.75	.78	.80	.82	.84	.76	.78	.80	.82	.85
8	.86	.88	.90	.93	.95	.87	.89	.91	.93	.95
9	.97	.99	1.01	1.03	1.05	.98	1.00	1.02	1.04	1.06
10	1.08	1.10	1.12	1.14	1.16	1.08	1.11	1.13	1.15	1.17
11	1.18	1.21	1.23	1.25	1.27	1.19	1.21	1.24	1.26	1.28
12	1.29	1.31	1.33	1.36	1.38	1.30	1.32	1.34	1.37	1.39
13	1.40	1.42	1.44	1.46	1.48	1.41	1.43	1.45	1.47	1.50
14	1.51	1.53	1.55	1.57	1.59	1.52	1.54	1.56	1.58	1.60
15	1.61	1.63	1.66	1.68	1.70	1.63	1.65	1.67	1.69	1.71
16	1.72	1.74	1.76	1.78	1.81	1.73	1.76	1.78	1.80	1.82
17	1.83	1.85	1.87	1.89	1.91	1.84	1.86	1.88	1.91	1.93
18	1.93	1.96	1.98	2.00	2.02	1.95	1.97	1.99	2.01	2.04
19	2.04	2.06	2.08	2.11	2.13	2.06	2.08	2.10	2.12	2.14
20	2.15	2.17	2.19	2.21	2.23	2.17	2.19	2.21	2.23	2.25
21	2.26	2.28	2.30	2.32	2.34	2.27	2.29	2.32	2.34	2.36
22	2.36	2.38	2.41	2.43	2.45	2.38	2.40	2.42	2.45	2.47
23	2.47	2.49	2.51	2.53	2.56	2.49	2.51	2.53	2.55	2.57
24	2.58	2.60	2.62	2.64	2.66	2.60	2.62	2.64	2.66	2.68
25	2.68	2.71	2.73	2.75	2.77	2.70	2.73	2.75	2.77	2.79
26	2.79	2.81	2.83	2.85	2.88	2.81	2.83	2.85	2.88	2.90
27	2.90	2.92	2.94	2.96	2.98	2.92	2.94	2.96	2.98	3.01
28	3.00	3.03	3.05	3.07	3.09	3.03	3.05	3.07	3.09	3.11
29	3.11	3.13	3.15	3.18	3.20	3.13	3.16	3.18	3.20	3.22
30	3.22	3.24	3.26	3.28	3.30	3.24	3.26	3.29	3.31	3.33
31	3.32	3.35	3.37	3.39	3.41	3.35	3.37	3.39	3.41	3.44
32	3.43	3.45	3.47	3.49	3.52	3.46	3.48	3.50	3.52	3.54
33	3.54	3.56	3.58	3.60	3.62	3.56	3.59	3.61	3.63	3.65
34	3.64	3.67	3.69	3.71	3.73	3.67	3.69	3.71	3.74	3.76
35	3.75	3.77	3.79	3.81	3.84	3.78	3.80	3.82	3.84	3.86

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

Attached Thermometer.	Height of the barometer 670 mm.					Height of the barometer 675 mm.				
	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.07	0.09	0.00	0.02	0.04	0.07	0.09
1	.11	.13	.15	.18	.20	.11	.13	.15	.18	.20
2	.22	.24	.26	.28	.31	.22	.24	.26	.29	.31
3	.33	.35	.37	.39	.42	.33	.35	.37	.40	.42
4	.44	.46	.48	.50	.53	.44	.46	.48	.51	.53
5	0.55	0.57	0.59	0.61	0.63	0.55	0.57	0.60	0.62	0.64
6	.66	.68	.70	.72	.74	.66	.68	.71	.73	.75
7	.77	.79	.81	.83	.85	.77	.79	.82	.84	.86
8	.87	.90	.92	.94	.96	.88	.90	.93	.95	.97
9	.98	1.01	1.03	1.05	1.07	.99	1.01	1.04	1.06	1.08
10	1.09	1.11	1.14	1.16	1.18	1.10	1.12	1.14	1.17	1.19
11	1.20	1.22	1.25	1.27	1.29	1.21	1.23	1.25	1.28	1.30
12	1.31	1.33	1.35	1.38	1.40	1.32	1.34	1.36	1.39	1.41
13	1.42	1.44	1.46	1.49	1.51	1.43	1.45	1.47	1.50	1.52
14	1.53	1.55	1.57	1.59	1.62	1.54	1.56	1.58	1.61	1.63
15	1.64	1.66	1.68	1.70	1.72	1.65	1.67	1.69	1.72	1.74
16	1.75	1.77	1.79	1.81	1.83	1.76	1.78	1.80	1.83	1.85
17	1.86	1.88	1.90	1.92	1.94	1.87	1.89	1.91	1.94	1.96
18	1.96	1.99	2.01	2.03	2.05	1.98	2.00	2.02	2.04	2.07
19	2.07	2.09	2.12	2.14	2.16	2.09	2.11	2.13	2.15	2.18
20	2.18	2.20	2.23	2.25	2.27	2.20	2.22	2.24	2.26	2.29
21	2.29	2.31	2.33	2.36	2.38	2.31	2.33	2.35	2.37	2.39
22	2.40	2.42	2.44	2.46	2.49	2.42	2.44	2.46	2.48	2.50
23	2.51	2.53	2.55	2.57	2.59	2.53	2.55	2.57	2.59	2.61
24	2.62	2.64	2.66	2.68	2.70	2.64	2.66	2.68	2.70	2.72
25	2.72	2.75	2.77	2.79	2.81	2.74	2.77	2.79	2.81	2.83
26	2.83	2.85	2.88	2.90	2.92	2.85	2.88	2.90	2.92	2.94
27	2.94	2.96	2.98	3.01	3.03	2.96	2.99	3.01	3.03	3.05
28	3.05	3.07	3.09	3.11	3.14	3.07	3.09	3.12	3.14	3.16
29	3.16	3.18	3.20	3.22	3.24	3.18	3.20	3.23	3.25	3.27
30	3.27	3.29	3.31	3.33	3.35	3.29	3.31	3.33	3.36	3.38
31	3.37	3.40	3.42	3.44	3.46	3.40	3.42	3.44	3.47	3.49
33	3.48	3.50	3.53	3.55	3.57	3.51	3.53	3.55	3.57	3.60
33	3.59	3.61	3.63	3.66	3.68	3.62	3.64	3.66	3.68	3.71
34	3.70	3.72	3.74	3.76	3.79	3.73	3.75	3.77	3.79	3.81
35	3.81	3.83	3.85	3.87	3.89	3.84	3.86	3.88	3.90	3.92

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 680 mm.					HEIGHT OF THE BAROMETER 685 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.04	0.07	0.09	0.00	0.02	0.04	0.07	0.09
1	.11	.13	.16	.18	.20	.11	.13	.16	.18	.20
2	.22	.24	.27	.29	.31	.22	.25	.27	.29	.31
3	.33	.36	.38	.40	.42	.34	.36	.38	.40	.43
4	.44	.47	.49	.51	.53	.45	.47	.49	.51	.54
5	0.56	0.58	0.60	0.62	0.64	0.56	0.58	0.60	0.63	0.65
6	.67	.69	.71	.73	.75	.67	.69	.72	.74	.76
7	.78	.80	.82	.84	.87	.78	.80	.83	.85	.87
8	.89	.91	.93	.95	.98	.89	.92	.94	.96	.98
9	1.00	1.02	1.04	1.06	1.09	1.01	1.03	1.05	1.07	1.09
10	1.11	1.13	1.15	1.18	1.20	1.12	1.14	1.16	1.18	1.21
11	1.22	1.24	1.26	1.29	1.31	1.23	1.25	1.27	1.30	1.32
12	1.33	1.35	1.37	1.40	1.42	1.34	1.36	1.38	1.41	1.43
13	1.44	1.46	1.49	1.51	1.53	1.45	1.47	1.50	1.52	1.54
14	1.55	1.57	1.60	1.62	1.64	1.56	1.59	1.61	1.63	1.65
15	1.66	1.68	1.71	1.73	1.75	1.67	1.70	1.72	1.74	1.76
16	1.77	1.79	1.82	1.84	1.86	1.79	1.81	1.83	1.85	1.87
17	1.88	1.91	1.93	1.95	1.97	1.90	1.92	1.94	1.96	1.99
18	1.99	2.02	2.04	2.06	2.08	2.01	2.03	2.05	2.07	2.10
19	2.10	2.13	2.15	2.17	2.19	2.12	2.14	2.16	2.19	2.21
20	2.21	2.24	2.26	2.28	2.30	2.23	2.25	2.27	2.30	2.32
21	2.32	2.35	2.37	2.39	2.41	2.34	2.36	2.39	2.41	2.43
22	2.43	2.46	2.48	2.50	2.52	2.45	2.47	2.50	2.52	2.54
23	2.54	2.57	2.59	2.61	2.63	2.56	2.59	2.61	2.63	2.65
24	2.66	2.68	2.70	2.72	2.74	2.67	2.70	2.72	2.74	2.76
25	2.77	2.79	2.81	2.83	2.85	2.79	2.81	2.83	2.85	2.87
26	2.88	2.90	2.92	2.94	2.96	2.90	2.92	2.94	2.96	2.99
27	2.99	3.01	3.03	3.05	3.07	3.01	3.03	3.05	3.07	3.10
28	3.10	3.12	3.14	3.16	3.18	3.12	3.14	3.16	3.18	3.21
29	3.21	3.23	3.25	3.27	3.29	3.23	3.25	3.27	3.30	3.32
30	3.32	3.34	3.36	3.38	3.40	3.34	3.36	3.38	3.41	3.43
31	3.43	3.45	3.47	3.49	3.51	3.45	3.47	3.49	3.52	3.54
32	3.54	3.56	3.58	3.60	3.62	3.56	3.58	3.61	3.63	3.65
33	3.64	3.67	3.69	3.71	3.73	3.67	3.69	3.72	3.74	3.76
34	3.75	3.78	3.80	3.82	3.84	3.78	3.80	3.83	3.85	3.87
35	3.86	3.89	3.91	3.93	3.95	3.89	3.91	3.94	3.96	3.98

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 690 mm.					HEIGHT OF THE BAROMETER 695 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.05	0.07	0.09	0.00	0.02	0.05	0.07	0.09
1	.11	.14	.16	.18	.20	.11	.14	.16	.18	.20
2	.23	.25	.27	.29	.32	.23	.25	.27	.30	.32
3	.34	.36	.38	.41	.43	.34	.36	.39	.41	.43
4	.45	.47	.50	.52	.54	.45	.48	.50	.52	.54
5	0.56	0.59	0.61	0.63	0.65	0.57	0.59	0.61	0.64	0.66
6	.68	.70	.72	.74	.77	.68	.70	.73	.75	.77
7	.79	.81	.83	.86	.88	.79	.82	.84	.86	.88
8	.90	.92	.95	.97	.99	.91	.93	.95	.98	1.00
9	1.01	1.04	1.06	1.08	1.10	1.02	1.04	1.07	1.09	1.11
10	1.13	1.15	1.17	1.19	1.22	1.13	1.16	1.18	1.20	1.22
11	1.24	1.26	1.28	1.31	1.33	1.25	1.27	1.29	1.31	1.34
12	1.35	1.37	1.39	1.42	1.44	1.36	1.38	1.41	1.43	1.45
13	1.46	1.48	1.51	1.53	1.55	1.47	1.50	1.52	1.54	1.56
14	1.57	1.60	1.62	1.64	1.66	1.59	1.61	1.63	1.65	1.68
15	1.69	1.71	1.73	1.75	1.78	1.70	1.72	1.74	1.77	1.79
16	1.80	1.82	1.84	1.87	1.89	1.81	1.83	1.86	1.88	1.90
17	1.91	1.93	1.96	1.98	2.00	1.92	1.95	1.97	1.99	2.01
18	2.02	2.05	2.07	2.09	2.11	2.04	2.06	2.08	2.11	2.13
19	2.13	2.16	2.18	2.20	2.22	2.15	2.17	2.20	2.22	2.24
20	2.25	2.27	2.29	2.31	2.34	2.26	2.29	2.31	2.33	2.35
21	2.36	2.38	2.40	2.43	2.45	2.38	2.40	2.42	2.44	2.47
22	2.47	2.49	2.52	2.54	2.56	2.49	2.51	2.53	2.56	2.58
23	2.58	2.60	2.63	2.65	2.67	2.60	2.62	2.65	2.67	2.69
24	2.69	2.72	2.74	2.76	2.78	2.71	2.74	2.76	2.78	2.80
25	2.81	2.83	2.85	2.87	2.90	2.83	2.85	2.87	2.89	2.92
26	2.92	2.94	2.96	2.99	3.01	2.94	2.96	2.98	3.01	3.03
27	3.03	3.05	3.07	3.10	3.12	3.05	3.07	3.10	3.12	3.14
28	3.14	3.16	3.19	3.21	3.23	3.16	3.19	3.21	3.23	3.25
29	3.25	3.27	3.30	3.32	3.34	3.28	3.30	3.32	3.34	3.37
30	3.36	3.39	3.41	3.43	3.45	3.39	3.41	3.43	3.46	3.48
31	3.48	3.50	3.52	3.54	3.56	3.50	3.52	3.55	3.57	3.59
32	3.59	3.61	3.63	3.65	3.68	3.61	3.64	3.66	3.68	3.70
33	3.70	3.72	3.74	3.77	3.79	3.73	3.75	3.77	3.79	3.81
34	3.81	3.83	3.85	3.88	3.90	3.84	3.86	3.88	3.90	3.93
35	3.92	3.94	3.97	3.99	4.01	3.95	3.97	3.99	4.02	4.04

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 700 mm.					HEIGHT OF THE BAROMETER 705 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.05	0.07	0.09	0.00	0.02	0.05	0.07	0.09
1	.11	.14	.16	.18	.21	.12	.14	.16	.18	.21
2	.23	.25	.27	.30	.32	.23	.25	.28	.30	.32
3	.34	.37	.39	.41	.43	.35	.37	.39	.41	.44
4	.46	.48	.50	.53	.55	.46	.48	.51	.53	.55
5	0.57	0.59	0.62	0.64	0.66	0.58	0.60	0.62	0.64	0.67
6	.69	.71	.73	.75	.78	.69	.71	.74	.76	.78
7	.80	.82	.85	.87	.89	.81	.83	.85	.87	.90
8	.91	.94	.96	.98	1.00	.92	.94	.97	.99	1.01
9	1.03	1.05	1.07	1.10	1.12	1.04	1.06	1.08	1.10	1.13
10	1.14	1.16	1.19	1.21	1.23	1.15	1.17	1.20	1.22	1.24
11	1.26	1.28	1.30	1.32	1.35	1.26	1.29	1.31	1.33	1.36
12	1.37	1.39	1.42	1.44	1.46	1.38	1.40	1.43	1.45	1.47
13	1.48	1.51	1.53	1.55	1.57	1.49	1.52	1.54	1.56	1.59
14	1.60	1.62	1.64	1.67	1.69	1.61	1.63	1.65	1.68	1.70
15	1.71	1.73	1.76	1.78	1.80	1.72	1.75	1.77	1.79	1.81
16	1.82	1.85	1.87	1.89	1.92	1.84	1.86	1.88	1.91	1.93
17	1.94	1.96	1.98	2.01	2.03	1.95	1.98	2.00	2.02	2.04
18	2.05	2.07	2.10	2.12	2.14	2.07	2.09	2.11	2.14	2.16
19	2.17	2.19	2.21	2.23	2.26	2.18	2.20	2.23	2.25	2.27
20	2.28	2.30	2.32	2.35	2.37	2.30	2.32	2.34	2.36	2.39
21	2.39	2.42	2.44	2.46	2.48	2.41	2.43	2.46	2.48	2.50
22	2.51	2.53	2.55	2.57	2.60	2.52	2.55	2.57	2.59	2.62
23	2.62	2.64	2.67	2.69	2.71	2.64	2.66	2.68	2.71	2.73
24	2.73	2.76	2.78	2.80	2.82	2.75	2.78	2.80	2.82	2.84
25	2.85	2.87	2.89	2.91	2.94	2.87	2.89	2.91	2.94	2.96
26	2.96	2.98	3.01	3.03	3.05	2.98	3.00	3.03	3.05	3.07
27	3.07	3.10	3.12	3.14	3.16	3.10	3.12	3.14	3.16	3.19
28	3.19	3.21	3.23	3.25	3.28	3.21	3.23	3.25	3.28	3.30
29	3.30	3.32	3.34	3.37	3.39	3.32	3.35	3.37	3.39	3.41
30	3.41	3.44	3.46	3.48	3.50	3.44	3.46	3.48	3.51	3.53
31	3.53	3.55	3.57	3.59	3.62	3.55	3.57	3.60	3.62	3.64
32	3.64	3.66	3.68	3.71	3.73	3.66	3.69	3.71	3.73	3.76
33	3.75	3.77	3.80	3.82	3.84	3.78	3.80	3.82	3.85	3.87
34	3.87	3.89	3.91	3.93	3.96	3.89	3.92	3.94	3.96	3.98
35	3.98	4.00	4.02	4.05	4.07	4.01	4.03	4.05	4.07	4.10

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 710 mm.					HEIGHT OF THE BAROMETER 715 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.05	0.07	0.09	0.00	0.02	0.05	0.07	0.09
1	.12	.14	.16	.19	.21	.12	.14	.16	.19	.21
2	.23	.26	.28	.30	.32	.23	.26	.28	.30	.33
3	.35	.37	.39	.42	.44	.35	.37	.40	.42	.44
4	.46	.49	.51	.53	.56	.47	.49	.51	.54	.56
5	0.58	0.60	0.63	0.65	0.67	0.58	0.61	0.63	0.65	0.68
6	.70	.72	.74	.76	.79	.70	.72	.75	.77	.79
7	.81	.83	.86	.88	.90	.82	.84	.86	.89	.91
8	.93	.95	.97	1.00	1.02	.93	.96	.98	1.00	1.03
9	1.04	1.07	1.09	1.11	1.13	1.05	1.07	1.10	1.12	1.14
10	1.16	1.18	1.20	1.23	1.25	1.17	1.19	1.21	1.24	1.26
11	1.27	1.30	1.32	1.34	1.37	1.28	1.31	1.33	1.35	1.38
12	1.39	1.41	1.44	1.46	1.48	1.40	1.42	1.45	1.47	1.49
13	1.50	1.53	1.55	1.57	1.60	1.52	1.54	1.56	1.58	1.61
14	1.62	1.64	1.67	1.69	1.71	1.63	1.65	1.68	1.70	1.72
15	1.74	1.76	1.78	1.80	1.83	1.75	1.77	1.79	1.82	1.84
16	1.85	1.87	1.90	1.92	1.94	1.86	1.89	1.91	1.93	1.96
17	1.97	1.99	2.01	2.04	2.06	1.98	2.00	2.03	2.05	2.07
18	2.08	2.10	2.13	2.15	2.17	2.10	2.12	2.14	2.17	2.19
19	2.20	2.22	2.24	2.27	2.29	2.21	2.24	2.26	2.28	2.30
20	2.31	2.33	2.36	2.38	2.40	2.33	2.35	2.37	2.40	2.42
21	2.43	2.45	2.47	2.50	2.52	2.44	2.47	2.49	2.51	2.54
22	2.54	2.57	2.59	2.61	2.63	2.56	2.58	2.61	2.63	2.65
23	2.66	2.68	2.70	2.73	2.75	2.68	2.70	2.72	2.75	2.77
24	2.77	2.80	2.82	2.84	2.86	2.79	2.81	2.84	2.86	2.88
25	2.89	2.91	2.93	2.96	2.98	2.91	2.93	2.95	2.98	3.00
26	3.00	3.03	3.05	3.07	3.09	3.02	3.05	3.07	3.09	3.12
27	3.12	3.14	3.16	3.19	3.21	3.14	3.16	3.19	3.21	3.23
28	3.23	3.25	3.28	3.30	3.32	3.25	3.28	3.30	3.32	3.35
29	3.35	3.37	3.39	3.42	3.44	3.37	3.39	3.42	3.44	3.46
30	3.46	3.48	3.51	3.53	3.55	3.49	3.51	3.53	3.56	3.58
31	3.58	3.60	3.62	3.65	3.67	3.60	3.62	3.65	3.67	3.69
32	3.69	3.71	3.74	3.76	3.78	3.72	3.74	3.76	3.79	3.81
33	3.81	3.83	3.85	3.87	3.90	3.83	3.86	3.88	3.90	3.92
34	3.92	3.94	3.97	3.99	4.01	3.95	3.97	3.99	4.02	4.04
35	4.03	4.06	4.08	4.10	4.13	4.06	4.09	4.11	4.13	4.16

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 720 mm.					HEIGHT OF THE BAROMETER 725 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.05	0.07	0.09	0.00	0.02	0.05	0.07	0.09
1	.12	.14	.16	.19	.21	.12	.14	.17	.19	.21
2	.24	.26	.28	.31	.33	.24	.26	.28	.31	.33
3	.35	.38	.40	.42	.45	.36	.38	.40	.43	.45
4	.47	.49	.52	.54	.56	.47	.50	.52	.54	.57
5	0.59	0.61	0.63	0.66	0.68	0.59	0.62	0.64	0.66	0.69
6	.71	.73	.75	.78	.80	.71	.73	.76	.78	.80
7	.82	.85	.87	.89	.92	.83	.85	.88	.90	.92
8	.94	.96	.99	1.01	1.03	.95	.97	.99	1.02	1.04
9	1.06	1.08	1.10	1.13	1.15	1.06	1.09	1.11	1.14	1.16
10	1.17	1.20	1.22	1.24	1.27	1.18	1.21	1.23	1.25	1.28
11	1.29	1.31	1.34	1.36	1.39	1.30	1.32	1.35	1.37	1.39
12	1.41	1.43	1.46	1.48	1.50	1.42	1.44	1.47	1.49	1.51
13	1.53	1.55	1.57	1.60	1.62	1.54	1.56	1.58	1.61	1.63
14	1.64	1.67	1.69	1.71	1.74	1.65	1.68	1.70	1.73	1.75
15	1.76	1.78	1.81	1.83	1.85	1.77	1.80	1.82	1.84	1.87
16	1.88	1.90	1.92	1.95	1.97	1.89	1.91	1.94	1.96	1.98
17	1.99	2.02	2.04	2.06	2.09	2.01	2.03	2.05	2.08	2.10
18	2.11	2.13	2.16	2.18	2.20	2.13	2.15	2.17	2.20	2.22
19	2.23	2.25	2.27	2.30	2.32	2.24	2.27	2.29	2.31	2.34
20	2.34	2.37	2.39	2.41	2.44	2.36	2.38	2.41	2.43	2.45
21	2.46	2.48	2.51	2.53	2.55	2.48	2.50	2.53	2.55	2.57
22	2.58	2.60	2.62	2.65	2.67	2.60	2.62	2.64	2.67	2.69
23	2.69	2.72	2.74	2.76	2.79	2.71	2.74	2.76	2.78	2.81
24	2.81	2.83	2.86	2.88	2.90	2.83	2.85	2.88	2.90	2.92
25	2.93	2.95	2.97	3.00	3.02	2.95	2.97	3.00	3.02	3.04
26	3.04	3.07	3.09	3.11	3.14	3.07	3.09	3.11	3.14	3.16
27	3.16	3.18	3.21	3.23	3.25	3.18	3.21	3.23	3.25	3.28
28	3.28	3.30	3.32	3.35	3.37	3.30	3.32	3.35	3.37	3.39
29	3.39	3.42	3.44	3.46	3.49	3.42	3.44	3.46	3.49	3.51
30	3.51	3.53	3.56	3.58	3.60	3.53	3.56	3.58	3.60	3.63
31	3.63	3.65	3.67	3.70	3.72	3.65	3.68	3.70	3.72	3.75
32	3.74	3.77	3.79	3.81	3.84	3.77	3.79	3.82	3.84	3.86
33	3.86	3.88	3.91	3.93	3.95	3.89	3.91	3.93	3.96	3.98
24	3.98	4.00	4.02	4.05	4.07	4.00	4.03	4.05	4.07	4.10
35	4.09	4.11	4.14	4.16	4.18	4.12	4.14	4.17	4.19	4.21

TABLE 47.

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 730 mm.					HEIGHT OF THE BAROMETER 735 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.05	0.07	0.10	0.00	0.02	0.05	0.07	0.10
1	.12	.14	.17	.19	.21	.12	.14	.17	.19	.22
2	.24	.26	.29	.31	.33	.24	.26	.29	.31	.34
3	.36	.38	.41	.43	.45	.36	.38	.41	.43	.46
4	.48	.50	.52	.55	.57	.48	.50	.53	.55	.58
5	0.60	0.62	0.64	0.67	0.69	0.60	0.62	0.65	0.67	0.70
6	.71	.74	.76	.79	.81	.72	.74	.77	.79	.82
7	.83	.86	.88	.91	.93	.84	.86	.89	.91	.94
8	.95	.98	1.00	1.02	1.05	.96	.98	1.01	1.03	1.06
9	1.07	1.10	1.12	1.14	1.17	1.08	1.10	1.13	1.15	1.17
10	1.19	1.21	1.24	1.26	1.29	1.20	1.22	1.25	1.27	1.29
11	1.31	1.33	1.36	1.38	1.40	1.32	1.34	1.37	1.39	1.41
12	1.43	1.45	1.48	1.50	1.52	1.44	1.46	1.49	1.51	1.53
13	1.55	1.57	1.59	1.62	1.64	1.56	1.58	1.61	1.63	1.65
14	1.67	1.69	1.71	1.74	1.76	1.68	1.70	1.72	1.75	1.77
15	1.78	1.81	1.83	1.86	1.88	1.80	1.82	1.84	1.87	1.89
16	1.90	1.93	1.95	1.97	2.00	1.92	1.94	1.96	1.99	2.01
17	2.02	2.05	2.07	2.09	2.12	2.04	2.06	2.08	2.11	2.13
18	2.14	2.16	2.19	2.21	2.23	2.15	2.18	2.20	2.23	2.25
19	2.26	2.28	2.31	2.33	2.35	2.27	2.30	2.32	2.35	2.37
20	2.38	2.40	2.42	2.45	2.47	2.39	2.42	2.44	2.46	2.49
21	2.50	2.52	2.54	2.57	2.59	2.51	2.54	2.56	2.58	2.61
22	2.61	2.64	2.66	2.68	2.71	2.63	2.66	2.68	2.70	2.73
23	2.73	2.76	2.78	2.80	2.83	2.75	2.77	2.80	2.82	2.85
24	2.85	2.87	2.90	2.92	2.94	2.87	2.89	2.92	2.94	2.97
25	2.97	2.99	3.02	3.04	3.06	2.99	3.01	3.04	3.06	3.08
26	3.09	3.11	3.13	3.16	3.18	3.11	3.13	3.16	3.18	3.20
27	3.20	3.23	3.25	3.28	3.30	3.23	3.25	3.27	3.30	3.32
28	3.32	3.35	3.37	3.39	3.42	3.35	3.37	3.39	3.42	3.44
29	3.44	3.46	3.49	3.51	3.54	3.46	3.49	3.51	3.54	3.56
30	3.56	3.58	3.61	3.63	3.65	3.58	3.61	3.63	3.65	3.68
31	3.68	3.70	3.72	3.75	3.77	3.70	3.73	3.75	3.77	3.80
32	3.79	3.82	3.84	3.87	3.89	3.82	3.84	3.87	3.89	3.92
33	3.91	3.94	3.96	3.98	4.01	3.94	3.96	3.99	4.01	4.03
34	4.03	4.05	4.08	4.10	4.12	4.06	4.08	4.11	4.13	4.15
35	4.15	4.17	4.20	4.22	4.24	4.18	4.20	4.22	4.25	4.27

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

Attached Thermometer.	Height of the Barometer 740 mm.					Height of the Barometer 745 mm.				
	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.05	0.07	0.10	0.00	0.02	0.05	0.07	0.10
1	.12	.15	.17	.19	.22	.12	.15	.17	.19	.22
2	.24	.27	.29	.31	.34	.24	.27	.29	.32	.34
3	.36	.39	.41	.44	.46	.37	.39	.41	.44	.46
4	.48	.51	.53	.56	.58	.49	.51	.54	.56	.58
5	0.60	0.63	0.65	0.68	0.70	0.61	0.63	0.66	0.68	0.71
6	.72	.75	.77	.80	.82	.73	.75	.78	.80	.83
7	.85	.87	.89	.92	.94	.85	.88	.90	.92	.95
8	.97	.99	1.01	1.04	1.06	.97	1.00	1.02	1.05	1.07
9	1.09	1.11	1.13	1.16	1.18	1.09	1.12	1.14	1.17	1.19
10	1.21	1.23	1.26	1.28	1.30	1.22	1.24	1.26	1.29	1.31
11	1.33	1.35	1.38	1.40	1.42	1.34	1.36	1.38	1.41	1.43
12	1.45	1.47	1.50	1.52	1.54	1.46	1.48	1.51	1.53	1.55
13	1.57	1.59	1.62	1.64	1.66	1.58	1.60	1.63	1.65	1.68
14	1.69	1.71	1.74	1.76	1.78	1.70	1.72	1.75	1.77	1.80
15	1.81	1.83	1.86	1.88	1.90	1.82	1.85	1.87	1.89	1.92
16	1.93	1.95	1.98	2.00	2.03	1.94	1.97	1.99	2.01	2.04
17	2.05	2.07	2.10	2.12	2.15	2.06	2.09	2.11	2.14	2.16
18	2.17	2.19	2.22	2.24	2.27	2.18	2.21	2.23	2.26	2.28
19	2.29	2.31	2.34	2.36	2.39	2.31	2.33	2.35	2.38	2.40
20	2.41	2.43	2.46	2.48	2.51	2.43	2.45	2.47	2.50	2.52
21	2.53	2.55	2.58	2.60	2.63	2.55	2.57	2.59	2.62	2.64
22	2.65	2.67	2.70	2.72	2.75	2.67	2.69	2.72	2.74	2.76
23	2.77	2.79	2.82	2.84	2.87	2.79	2.81	2.84	2.86	2.88
24	2.89	2.91	2.94	2.96	2.99	2.91	2.93	2.96	2.98	3.01
25	3.01	3.03	3.06	3.08	3.11	3.03	3.05	3.08	3.10	3.13
26	3.13	3.15	3.18	3.20	3.22	3.15	3.17	3.20	3.22	3.25
27	3.25	3.27	3.30	3.32	3.34	3.27	3.29	3.32	3.34	3.37
28	3.37	3.39	3.42	3.44	3.46	3.39	3.42	3.44	3.46	3.49
29	3.49	3.51	3.54	3.56	3.58	3.51	3.54	3.56	3.58	3.61
30	3.61	3.63	3.66	3.68	3.70	3.63	3.66	3.68	3.70	3.73
31	3.73	3.75	3.78	3.80	3.82	3.75	3.78	3.80	3.82	3.85
32	3.85	3.87	3.89	3.92	3.94	3.87	3.90	3.92	3.95	3.97
33	3.97	3.99	4.01	4.04	4.06	3.99	4.02	4.04	4.07	4.09
34	4.09	4.11	4.13	4.16	4.18	4.11	4.14	4.16	4.19	4.21
35	4.21	4.23	4.25	4.28	4.30	4.23	4.26	4.28	4.31	4.33

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 750 mm.					HEIGHT OF THE BAROMETER 755 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.05	0.07	0.10	0.00	0.02	0.05	0.07	0.10
1	.12	.15	.17	.20	.22	.12	.15	.17	.20	.22
2	.25	.27	.29	.32	.34	.25	.27	.30	.32	.35
3	.37	.39	.42	.44	.47	.37	.39	.42	.44	.47
4	.49	.51	.54	.56	.59	.49	.52	.54	.57	.59
5	0.61	0.64	0.66	0.69	0.71	0.62	0.64	0.67	0.69	0.71
6	.73	.76	.78	.81	.83	.74	.76	.79	.81	.84
7	.86	.88	.91	.93	.95	.86	.89	.91	.94	.96
8	.98	1.00	1.03	1.05	1.08	.99	1.01	1.03	1.06	1.08
9	1.10	1.13	1.15	1.17	1.20	1.11	1.13	1.16	1.18	1.21
10	1.22	1.25	1.27	1.30	1.32	1.23	1.26	1.28	1.31	1.33
11	1.35	1.37	1.39	1.42	1.44	1.35	1.38	1.40	1.43	1.45
12	1.47	1.49	1.52	1.54	1.56	1.48	1.50	1.53	1.55	1.58
13	1.59	1.61	1.64	1.66	1.69	1.60	1.62	1.65	1.67	1.70
14	1.71	1.74	1.76	1.78	1.81	1.72	1.75	1.77	1.80	1.82
15	1.83	1.86	1.88	1.91	1.93	1.85	1.87	1.89	1.92	1.94
16	1.96	1.98	2.00	2.03	2.05	1.97	1.99	2.02	2.04	2.07
17	2.08	2.10	2.13	2.15	2.17	2.09	2.12	2.14	2.16	2.19
18	2.20	2.22	2.25	2.27	2.30	2.21	2.24	2.26	2.29	2.31
19	2.32	2.34	2.37	2.39	2.42	2.34	2.36	2.38	2.41	2.43
20	2.44	2.47	2.49	2.52	2.54	2.46	2.48	2.51	2.53	2.56
21	2.56	2.59	2.61	2.64	2.66	2.58	2.61	2.63	2.65	2.68
22	2.69	2.71	2.73	2.76	2.78	2.70	2.73	2.75	2.78	2.80
23	2.81	2.83	2.86	2.88	2.90	2.83	2.85	2.87	2.90	2.92
24	2.93	2.95	2.98	3.00	3.03	2.95	2.97	3.00	3.02	3.05
25	3.05	3.07	3.10	3.12	3.15	3.07	3.09	3.12	3.14	3.17
26	3.17	3.20	3.22	3.24	3.27	3.19	3.22	3.24	3.27	3.29
27	3.29	3.32	3.34	3.37	3.39	3.31	3.34	3.36	3.39	3.41
28	3.41	3.44	3.46	3.49	3.51	3.44	3.46	3.49	3.51	3.53
29	3.54	3.56	3.58	3.61	3.63	3.56	3.58	3.61	3.63	3.66
30	3.66	3.68	3.71	3.73	3.75	3.68	3.71	3.73	3.75	3.78
31	3.78	3.80	3.83	3.85	3.87	3.80	3.83	3.85	3.88	3.90
32	3.90	3.92	3.95	3.97	4.00	3.92	3.95	3.97	4.00	4.02
33	4.02	4.04	4.07	4.09	4.12	4.05	4.07	4.10	4.12	4.14
34	4.14	4.17	4.19	4.21	4.24	4.17	4.19	4.22	4.24	4.27
35	4.26	4.29	4.31	4.33	4.36	4.29	4.31	4.34	4.36	4.39

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 760 mm.					HEIGHT OF THE BAROMETER 765 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.02	0.05	0.07	0.10	0.00	0.03	0.05	0.07	0.10
1	.12	.15	.17	.20	.22	.13	.15	.17	.20	.22
2	.25	.27	.30	.32	.35	.25	.27	.30	.32	.35
3	.37	.40	.42	.45	.47	.37	.40	.42	.45	.47
4	.50	.52	.55	.57	.60	.50	.52	.55	.57	.60
5	0.62	0.65	0.67	0.69	0.72	0.62	0.65	0.67	0.70	0.72
6	.74	.77	.79	.82	.84	.75	.77	.80	.82	.85
7	.87	.89	.92	.94	.97	.87	.90	.92	.95	.97
8	.99	1.02	1.04	1.07	1.09	1.00	1.02	1.05	1.07	1.10
9	1.12	1.14	1.17	1.19	1.21	1.12	1.15	1.17	1.20	1.22
10	1.24	1.26	1.29	1.31	1.34	1.25	1.27	1.30	1.32	1.35
11	1.36	1.39	1.41	1.44	1.46	1.37	1.40	1.42	1.45	1.47
12	1.49	1.51	1.54	1.56	1.59	1.50	1.52	1.55	1.57	1.60
13	1.61	1.64	1.66	1.68	1.71	1.62	1.65	1.67	1.70	1.72
14	1.73	1.76	1.78	1.81	1.83	1.75	1.77	1.80	1.82	1.85
15	1.86	1.88	1.91	1.93	1.96	1.87	1.89	1.92	1.94	1.97
16	1.98	2.01	2.03	2.06	2.08	1.99	2.02	2.04	2.07	2.09
17	2.10	2.13	2.15	2.18	2.20	2.12	2.14	2.17	2.19	2.22
18	2.23	2.25	2.28	2.30	2.33	2.24	2.27	2.29	2.32	2.34
19	2.35	2.38	2.40	2.43	2.45	2.37	2.39	2.42	2.44	2.47
20	2.47	2.50	2.52	2.55	2.57	2.49	2.52	2.54	2.57	2.59
21	2.60	2.62	2.65	2.67	2.70	2.62	2.64	2.66	2.69	2.71
22	2.72	2.75	2.77	2.80	2.82	2.74	2.76	2.79	2.81	2.84
23	2.84	2.87	2.89	2.92	2.94	2.86	2.89	2.91	2.94	2.96
24	2.97	2.99	3.02	3.04	3.07	2.99	3.01	3.04	3.06	3.09
25	3.09	3.12	3.14	3.16	3.19	3.11	3.14	3.16	3.19	3.21
26	3.21	3.24	3.26	3.29	3.31	3.23	3.26	3.28	3.31	3.33
27	3.34	3.36	3.39	3.41	3.43	3.36	3.38	3.41	3.43	3.46
28	3.46	3.48	3.51	3.53	3.56	3.48	3.51	3.53	3.56	3.58
29	3.58	3.61	3.63	3.66	3.68	3.61	3.63	3.66	3.68	3.70
30	3.71	3.73	3.75	3.78	3.80	3.73	3.75	3.78	3.80	3.83
31	3.83	3.85	3.88	3.90	3.93	3.85	3.88	3.90	3.93	3.95
32	3.95	3.98	4.00	4.02	4.05	3.98	4.00	4.03	4.05	4.08
33	4.07	4.10	4.12	4.15	4.17	4.10	4.13	4.15	4.17	4.20
34	4.20	4.22	4.25	4.27	4.29	4.22	4.25	4.27	4.30	4.32
35	4.32	4.34	4.37	4.39	4.42	4.35	4.37	4.40	4.42	4.45

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 770 mm.					HEIGHT OF THE BAROMETER 775 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.03	0.05	0.08	0.10	0.00	0.03	0.05	0.08	0.10
1	.13	.15	.18	.20	.23	.13	.15	.18	.20	.23
2	.25	.28	.30	.33	.35	.25	.28	.30	.33	.35
3	.38	.40	.43	.45	.48	.38	.40	.43	.46	.48
4	.50	.53	.55	.58	.60	.51	.53	.56	.58	.61
5	0.63	0.65	0.68	0.70	0.73	0.63	0.66	0.68	0.71	0.73
6	.75	.78	.80	.83	.85	.76	.78	.81	.83	.86
7	.88	.90	.93	.95	.98	.89	.91	.94	.96	.99
8	1.01	1.03	1.06	1.08	1.11	1.01	1.04	1.06	1.09	1.11
9	1.13	1.16	1.18	1.21	1.23	1.14	1.16	1.19	1.21	1.24
10	1.26	1.28	1.31	1.33	1.36	1.26	1.29	1.31	1.34	1.36
11	1.38	1.41	1.43	1.46	1.48	1.39	1.42	1.44	1.47	1.49
12	1.51	1.53	1.56	1.58	1.61	1.52	1.54	1.57	1.59	1.62
13	1.63	1.66	1.68	1.71	1.73	1.64	1.67	1.69	1.72	1.74
14	1.76	1.78	1.81	1.83	1.86	1.77	1.79	1.82	1.84	1.87
15	1.88	1.91	1.93	1.96	1.98	1.89	1.92	1.94	1.97	2.00
16	2.01	2.03	2.06	2.08	2.11	2.02	2.05	2.07	2.10	2.12
17	2.13	2.16	2.18	2.21	2.23	2.15	2.17	2.20	2.22	2.25
18	2.26	2.28	2.31	2.33	2.36	2.27	2.30	2.32	2.35	2.37
19	2.38	2.41	2.43	2.46	2.48	2.40	2.42	2.45	2.47	2.50
20	2.51	2.53	2.56	2.58	2.61	2.52	2.55	2.57	2.60	2.62
21	2.63	2.66	2.68	2.71	2.73	2.65	2.67	2.70	2.72	2.75
22	2.76	2.78	2.81	2.83	2.86	2.77	2.80	2.83	2.85	2.88
23	2.88	2.91	2.93	2.96	2.98	2.90	2.93	2.95	2.98	3.00
24	3.01	3.03	3.06	3.08	3.11	3.03	3.05	3.08	3.10	3.13
25	3.13	3.16	3.18	3.21	3.23	3.15	3.18	3.20	3.23	3.25
26	3.26	3.28	3.31	3.33	3.36	3.28	3.30	3.33	3.35	3.38
27	3.38	3.41	3.43	3.46	3.48	3.40	3.43	3.45	3.48	3.50
28	3.51	3.53	3.56	3.58	3.60	3.53	3.55	3.58	3.60	3.63
29	3.63	3.65	3.68	3.70	3.73	3.65	3.68	3.70	3.73	3.75
30	3.75	3.78	3.80	3.83	3.85	3.78	3.80	3.83	3.85	3.88
31	3.88	3.90	3.93	3.95	3.98	3.90	3.93	3.95	3.98	4.00
32	4.00	4.03	4.05	4.08	4.10	4.03	4.05	4.08	4.10	4.13
33	4.13	4.15	4.18	4.20	4.23	4.15	4.18	4.20	4.23	4.25
34	4.25	4.28	4.30	4.33	4.35	4.28	4.30	4.33	4.35	4.38
35	4.38	4.40	4.43	4.45	4.48	4.40	4.43	4.45	4.48	4.50

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 780 mm.					HEIGHT OF THE BAROMETER 785 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.03	0.05	0.08	0.10	0.00	0.03	0.05	0.08	0.10
1	.13	.15	.18	.20	.23	.13	.15	.18	.21	.23
2	.25	.28	.31	.33	.36	.26	.28	.31	.33	.36
3	.38	.41	.43	.46	.48	.38	.41	.44	.46	.49
4	.51	.53	.56	.59	.61	.51	.54	.56	.59	.62
5	0.64	0.66	0.69	0.71	0.74	0.64	0.67	0.69	0.72	0.74
6	.76	.79	.81	.84	.87	.77	.79	.82	.85	.87
7	.89	.92	.94	.97	.99	.90	.92	.95	.97	1.00
8	1.02	1.04	1.07	1.09	1.12	1.02	1.05	1.08	1.10	1.13
9	1.15	1.17	1.20	1.22	1.25	1.15	1.18	1.20	1.23	1.25
10	1.27	1.30	1.32	1.35	1.37	1.28	1.31	1.33	1.36	1.38
11	1.40	1.42	1.45	1.48	1.50	1.41	1.43	1.46	1.48	1.51
12	1.53	1.55	1.58	1.60	1.63	1.54	1.56	1.59	1.61	1.64
13	1.65	1.68	1.70	1.73	1.75	1.66	1.69	1.71	1.74	1.77
14	1.78	1.81	1.83	1.86	1.88	1.79	1.82	1.84	1.87	1.89
15	1.91	1.93	1.96	1.98	2.01	1.92	1.94	1.97	2.00	2.02
16	2.03	2.06	2.08	2.11	2.13	2.05	2.07	2.10	2.12	2.15
17	2.16	2.19	2.21	2.24	2.26	2.17	2.20	2.22	2.25	2.28
18	2.29	2.31	2.34	2.36	2.39	2.30	2.33	2.35	2.38	2.40
19	2.41	2.44	2.46	2.49	2.51	2.43	2.45	2.48	2.51	2.53
20	2.54	2.57	2.59	2.62	2.64	2.56	2.58	2.61	2.63	2.66
21	2.67	2.69	2.72	2.74	2.77	2.68	2.71	2.73	2.76	2.79
22	2.79	2.82	2.84	2.87	2.89	2.81	2.84	2.86	2.89	2.91
23	2.92	2.94	2.97	3.00	3.02	2.94	2.96	2.99	3.01	3.04
24	3.05	3.07	3.10	3.12	3.15	3.07	3.09	3.12	3.14	3.17
25	3.17	3.20	3.22	3.25	3.27	3.19	3.22	3.24	3.27	3.29
26	3.30	3.32	3.35	3.37	3.40	3.32	3.34	3.37	3.40	3.42
27	3.42	3.45	3.47	3.50	3.53	3.45	3.47	3.50	3.52	3.55
28	3.55	3.58	3.60	3.63	3.65	3.57	3.60	3.62	3.65	3.67
29	3.68	3.70	3.73	3.75	3.78	3.70	3.73	3.75	3.78	3.80
30	3.80	3.83	3.85	3.88	3.90	3.83	3.85	3.88	3.90	3.93
31	3.93	3.95	3.98	4.00	4.03	3.95	3.98	4.00	4.03	4.06
32	4.05	4.08	4.11	4.13	4.16	4.08	4.11	4.13	4.16	4.18
33	4.18	4.21	4.23	4.26	4.28	4.21	4.23	4.26	4.28	4.31
34	4.31	4.33	4.36	4.38	4.41	4.33	4.36	4.39	4.41	4.44
35	4.43	4.46	4.48	4.51	4.53	4.46	4.49	4.51	4.54	4.56

REDUCTION OF THE BAROMETER TO STANDARD TEMPERATURE.

METRIC MEASURES.

FOR TEMPERATURES ABOVE 0° CENTIGRADE, THE CORRECTION IS TO BE SUBTRACTED.

	HEIGHT OF THE BAROMETER 790 mm.					HEIGHT OF THE BAROMETER 795 mm.				
Attached Thermometer.	0°.0	0°.2	0°.4	0°.6	0°.8	0°.0	0°.2	0°.4	0°.6	0°.8
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	0.00	0.03	0.05	0.08	0.10	0.00	0.03	0.05	0.08	0.10
1	.13	.15	.18	.21	.23	.13	.16	.18	.21	.23
2	.26	.28	.31	.34	.36	.26	.29	.31	.34	.36
3	.39	.41	.44	.46	.49	.39	.42	.44	.47	.49
4	.52	.54	.57	.59	.62	.52	.55	.57	.60	.62
5	0.64	0.67	0.70	0.72	0.75	0.65	0.67	0.70	0.73	0.75
6	.77	.80	.83	.85	.88	.78	.80	.83	.86	.88
7	.90	.93	.95	.98	1.01	.91	.93	.96	.99	1.01
8	1.03	1.06	1.08	1.11	1.13	1.04	1.06	1.09	1.12	1.14
9	1.16	1.19	1.21	1.24	1.26	1.17	1.19	1.22	1.24	1.27
10	1.29	1.31	1.34	1.37	1.39	1.30	1.32	1.35	1.37	1.40
11	1.42	1.44	1.47	1.49	1.52	1.43	1.45	1.48	1.50	1.53
12	1.55	1.57	1.60	1.62	1.65	1.56	1.58	1.61	1.63	1.66
13	1.67	1.70	1.73	1.75	1.78	1.68	1.71	1.74	1.76	1.79
14	1.80	1.83	1.85	1.88	1.91	1.81	1.84	1.87	1.89	1.92
15	1.93	1.96	1.98	2.01	2.03	1.94	1.97	1.99	2.02	2.05
16	2.06	2.09	2.11	2.14	2.16	2.07	2.10	2.12	2.15	2.18
17	2.19	2.21	2.24	2.26	2.29	2.20	2.23	2.25	2.28	2.30
18	2.32	2.34	2.37	2.39	2.42	2.33	2.36	2.38	2.41	2.43
19	2.44	2.47	2.50	2.52	2.55	2.46	2.49	2.51	2.54	2.56
20	2.57	2.60	2.62	2.65	2.67	2.59	2.61	2.64	2.67	2.69
21	2.70	2.73	2.75	2.78	2.80	2.72	2.74	2.77	2.79	2.82
22	2.83	2.85	2.88	2.91	2.93	2.85	2.87	2.90	2.92	2.95
23	2.96	2.98	3.01	3.03	3.06	2.98	3.00	3.03	3.05	3.08
24	3.08	3.11	3.14	3.16	3.19	3.10	3.13	3.16	3.18	3.21
25	3.21	3.24	3.26	3.29	3.31	3.23	3.26	3.28	3.31	3.34
26	3.34	3.37	3.39	3.42	3.44	3.36	3.39	3.41	3.44	3.46
27	3.47	3.49	3.52	3.54	3.57	3.49	3.52	3.54	3.57	3.59
28	3.60	3.62	3.65	3.67	3.70	3.62	3.64	3.67	3.70	3.72
29	3.72	3.75	3.77	3.80	3.83	3.75	3.77	3.80	3.82	3.85
30	3.85	3.88	3.90	3.93	3.95	3.88	3.90	3.93	3.95	3.98
31	3.98	4.00	4.03	4.06	4.08	4.00	4.03	4.06	4.08	4.11
32	4.11	4.13	4.16	4.18	4.21	4.13	4.16	4.18	4.21	4.24
33	4.23	4.26	4.29	4.31	4.34	4.26	4.29	4.31	4.34	4.36
34	4.36	4.39	4.41	4.44	4.46	4.39	4.42	4.44	4.47	4.49
35	4.49	4.51	4.54	4.57	4.59	4.52	4.54	4.57	4.59	4.62

CORRECTIONS TO REDUCE BAROMETRIC READINGS TO STANDARD GRAVITY.

$$C = \frac{(g_l - g)}{g} B$$

(WITH $g_l < g$ THE CORRECTION IS TO BE SUBTRACTED; WITH $g_l > g$, IT IS TO BE ADDED.)

$g_l - g$	BAROMETER READING B.									
	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0
Dynes.	Dyne.	Dyne.	Dyne.	Dyne.	Dyne.	Dyne.	Dyne.	Dyne.	Dyne.	Dyne.
0.1	0.00010	0.00020	0.00031	0.00041	0.00051	0.00061	0.00071	0.00082	0.00092	0.00102
0.2	00020	00041	00061	00082	00102	00122	00143	00163	00184	00204
0.3	00031	00061	00092	00122	00153	00184	00214	00245	00275	00306
0.4	00041	00082	00122	00163	00204	00245	00286	00326	00367	00408
0.5	00051	00102	00153	00204	00255	00306	00357	00408	00459	00510
0.6	0.00061	0.00122	0.00184	0.00245	0.00306	0.00367	0.00428	0.00489	0.00551	0.00612
0.7	00071	00143	00214	00286	00357	00428	00500	00571	00642	00714
0.8	00082	00163	00245	00326	00408	00489	00571	00653	00734	00816
0.9	00092	00184	00275	00367	00459	00551	00642	00734	00826	00918
1.0	00102	00204	00306	00408	00510	00612	00714	00816	00918	01020
1.1	0.00112	0.00224	0.00337	0.00449	0.00561	0.00673	0.00785	0.00897	0.01010	0.01122
1.2	00122	00245	00367	00489	00612	00734	00857	00979	01101	01224
1.3	00133	00265	00398	00530	00663	00795	00928	01061	01193	01326
1.4	00143	00286	00428	00571	00714	00857	00999	01142	01285	01428
1.5	00153	00306	00459	00612	00765	00918	01071	01224	01377	01530
1.6	0.00163	0.00326	0.00489	0.00653	0.00816	0.00979	0.01142	0.01305	0.01468	0.01632
1.7	00173	00347	00520	00693	00867	01040	01213	01387	01560	01734
1.8	00184	00367	00551	00734	00918	01101	01285	01468	01652	01835
1.9	00194	00387	00581	00775	00969	01162	01356	01550	01744	01937
2.0	00204	00408	00612	00816	01020	01224	01428	01632	01835	02039
2.1	0.00214	0.00428	0.00642	0.00857	0.01071	0.01285	0.01499	0.01713	0.01927	0.02141
2.2	00224	00449	00673	00897	01122	01346	01570	01795	02019	02243
2.3	00235	00469	00704	00938	01173	01407	01642	01876	02111	02345
2.4	00245	00489	00734	00979	01224	01468	01713	01958	02203	02447
2.5	00255	00510	00765	01020	01275	01530	01785	02039	02294	02549
2.6	0.00265	0.00530	0.00795	0.01061	0.01326	0.01591	0.01856	0.02121	0.02386	0.02651
2.7	00275	00551	00826	01101	01377	01652	01927	02203	02478	02753
2.8	00286	00571	00857	01142	01428	01713	01999	02284	02570	02855
2.9	00296	00591	00887	01183	01479	01774	02070	02366	02661	02958
3.0	00306	00612	00918	01224	01530	01835	02141	02447	02753	03059
3.1	0.00316	0.00632	0.00948	0.01264	0.01581	0.01897	0.02213	0.02529	0.02845	0.03161
3.2	00326	00653	00979	01305	01632	01958	02284	02610	02937	03263
3.3	00337	00673	01010	01346	01683	02019	02356	02692	03029	03365
3.4	00347	00693	01040	01387	01734	02080	02427	02774	03120	03467
3.5	00357	00714	01071	01428	01785	02141	02498	02855	03212	03569
3.6	0.00367	0.00734	0.01101	0.01468	0.01835	0.02203	0.02570	0.02937	0.03304	0.03671
3.7	00377	00755	01132	01509	01886	02264	02641	03018	03396	03773
3.8	00387	00775	01162	01550	01937	02325	02712	03100	03487	03875
3.9	00398	00795	01193	01591	01988	02386	02784	03182	03579	03977
4.0	00408	00816	01224	01632	02039	02447	02855	03263	03671	04079

REDUCTION OF THE BAROMETER TO STANDARD GRAVITY.
ENGLISH MEASURES.

FROM LATITUDE 0° TO 45°, THE CORRECTION IS TO BE SUBTRACTED.

Latitude.	HEIGHT OF THE BAROMETER IN INCHES.											
	19	20	21	22	23	24	25	26	27	28	29	30
	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
0°	−0.051	−0.054	−0.056	−0.059	−0.062	−0.064	−0.067	−0.070	−0.072	−0.075	−0.078	−0.080
5	−0.050	−0.053	−0.055	−0.058	−0.061	−0.063	−0.066	−0.069	−0.071	−0.074	−0.077	−0.079
6	0.050	0.052	0.055	0.058	0.060	0.063	0.066	0.068	0.071	0.073	0.076	0.079
7	0.049	0.052	0.055	0.057	0.060	0.062	0.065	0.068	0.070	0.073	0.075	0.078
8	0.049	0.052	0.054	0.057	0.059	0.062	0.064	0.067	0.070	0.072	0.075	0.077
9	0.048	0.051	0.054	0.056	0.059	0.061	0.064	0.066	0.069	0.071	0.074	0.076
10	−0.048	−0.050	−0.053	−0.055	−0.058	−0.060	−0.063	−0.066	−0.068	−0.071	−0.073	−0.076
11	0.047	0.050	0.052	0.055	0.057	0.060	0.062	0.065	0.067	0.070	0.072	0.075
12	0.047	0.049	0.051	0.054	0.056	0.059	0.061	0.064	0.066	0.069	0.071	0.074
13	0.046	0.048	0.051	0.053	0.055	0.058	0.060	0.063	0.065	0.068	0.070	0.072
14	0.045	0.047	0.050	0.052	0.055	0.057	0.059	0.062	0.064	0.066	0.069	0.071
15	−0.044	−0.047	−0.049	−0.051	−0.053	−0.056	−0.058	−0.060	−0.063	−0.065	−0.067	−0.070
16	0.043	0.046	0.048	0.050	0.052	0.055	0.057	0.059	0.062	0.064	0.066	0.068
17	0.042	0.045	0.047	0.049	0.051	0.053	0.056	0.058	0.060	0.062	0.065	0.067
18	0.041	0.044	0.046	0.048	0.050	0.052	0.054	0.057	0.059	0.061	0.063	0.065
19	0.040	0.042	0.045	0.047	0.049	0.051	0.053	0.055	0.057	0.059	0.062	0.064
20	−0.039	−0.041	−0.043	−0.045	−0.047	−0.050	−0.052	−0.054	−0.056	−0.058	−0.060	−0.062
21	0.038	0.040	0.042	0.044	0.046	0.048	0.050	0.052	0.054	0.056	0.058	0.060
22	0.037	0.039	0.041	0.043	0.045	0.047	0.049	0.050	0.052	0.054	0.056	0.058
23	0.036	0.038	0.039	0.041	0.043	0.045	0.047	0.049	0.051	0.053	0.054	0.056
24	0.034	0.036	0.038	0.040	0.042	0.043	0.045	0.047	0.049	0.051	0.052	0.054
25	−0.033	−0.035	−0.037	−0.038	−0.040	−0.042	−0.043	−0.045	−0.047	−0.049	−0.050	−0.052
26	0.032	0.033	0.035	0.037	0.038	0.040	0.042	0.043	0.045	0.047	0.048	0.050
27	0.030	0.032	0.033	0.035	0.037	0.038	0.040	0.041	0.043	0.045	0.046	0.048
28	0.029	0.030	0.032	0.033	0.035	0.036	0.038	0.039	0.041	0.043	0.044	0.046
29	0.027	0.029	0.030	0.032	0.033	0.035	0.036	0.037	0.039	0.040	0.042	0.043
30	−0.026	−0.027	−0.029	−0.030	−0.031	−0.033	−0.034	−0.035	−0.037	−0.038	−0.040	−0.041
31	0.024	0.026	0.027	0.028	0.030	0.031	0.032	0.033	0.035	0.036	0.037	0.038
32	0.023	0.024	0.025	0.026	0.028	0.029	0.030	0.031	0.032	0.034	0.035	0.036
33	0.021	0.022	0.023	0.025	0.026	0.027	0.028	0.029	0.030	0.031	0.032	0.034
34	0.020	0.021	0.022	0.023	0.024	0.025	0.026	0.027	0.028	0.029	0.030	0.031
35	−0.018	−0.019	−0.020	−0.021	−0.022	−0.023	−0.024	−0.025	−0.026	−0.027	−0.027	−0.028
36	0.016	0.017	0.018	0.019	0.020	0.021	0.022	0.022	0.023	0.024	0.025	0.026
37	0.015	0.015	0.016	0.017	0.018	0.019	0.019	0.020	0.021	0.022	0.022	0.023
38	0.013	0.014	0.014	0.015	0.016	0.016	0.017	0.018	0.018	0.019	0.020	0.020
39	0.011	0.012	0.012	0.013	0.014	0.014	0.015	0.015	0.016	0.017	0.017	0.018
40	−0.010	−0.010	−0.011	−0.011	−0.012	−0.012	−0.013	−0.013	−0.014	−0.014	−0.015	−0.015
41	0.008	0.008	0.009	0.009	0.009	0.010	0.010	0.011	0.011	0.012	0.012	0.012
42	0.006	0.006	0.007	0.007	0.007	0.008	0.008	0.008	0.009	0.009	0.009	0.010
43	0.004	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.007	0.007
44	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004
45	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001

REDUCTION OF THE BAROMETER TO STANDARD GRAVITY.

ENGLISH MEASURES.

FROM LATITUDE 46° TO 90° THE CORRECTION IS TO BE ADDED.

Latitude.	HEIGHT OF THE BAROMETER IN INCHES.											
	19	20	21	22	23	24	25	26	27	28	29	30
	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
45°	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001
46	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001	+0.001
47	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004
48	0.004	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.007	0.007
49	0.006	0.006	0.007	0.007	0.007	0.008	0.008	0.008	0.009	0.009	0.009	0.010
50	0.008	0.008	0.009	0.009	0.010	0.010	0.010	0.011	0.011	0.012	0.012	0.012
51	+0.010	+0.010	+0.011	+0.011	+0.012	+0.012	+0.013	+0.013	+0.014	+0.014	+0.015	+0.015
52	0.011	0.012	0.012	0.013	0.014	0.014	0.015	0.015	0.016	0.016	0.017	0.018
53	0.013	0.014	0.014	0.015	0.016	0.016	0.017	0.018	0.018	0.019	0.020	0.020
54	0.015	0.015	0.016	0.017	0.018	0.019	0.019	0.020	0.021	0.022	0.022	0.023
55	0.016	0.017	0.018	0.019	0.020	0.021	0.021	0.022	0.023	0.024	0.025	0.026
56	+0.018	+0.019	+0.020	+0.021	+0.022	+0.023	+0.024	+0.024	+0.026	+0.026	+0.027	+0.028
57	0.020	0.021	0.022	0.023	0.024	0.025	0.026	0.027	0.028	0.029	0.030	0.031
58	0.021	0.022	0.023	0.025	0.026	0.027	0.028	0.029	0.030	0.031	0.032	0.033
59	0.023	0.024	0.025	0.026	0.028	0.029	0.030	0.031	0.032	0.033	0.035	0.036
60	0.024	0.026	0.027	0.028	0.029	0.031	0.032	0.033	0.034	0.036	0.037	0.038
61	+0.026	+0.027	+0.028	+0.030	+0.031	+0.033	+0.034	+0.035	+0.037	+0.038	+0.039	+0.041
62	0.027	0.029	0.030	0.032	0.033	0.034	0.036	0.037	0.039	0.040	0.042	0.043
63	0.029	0.030	0.032	0.033	0.035	0.036	0.038	0.039	0.041	0.042	0.044	0.045
64	0.030	0.032	0.033	0.035	0.036	0.038	0.040	0.041	0.043	0.044	0.046	0.047
65	0.031	0.033	0.035	0.036	0.038	0.040	0.041	0.043	0.045	0.046	0.048	0.050
66	+0.033	+0.034	+0.036	+0.038	+0.040	+0.041	+0.043	+0.045	+0.047	+0.048	+0.050	+0.052
67	0.034	0.036	0.038	0.039	0.041	0.043	0.045	0.047	0.048	0.050	0.052	0.054
68	0.035	0.037	0.039	0.041	0.043	0.045	0.046	0.048	0.050	0.052	0.054	0.056
69	0.036	0.038	0.040	0.042	0.044	0.046	0.048	0.050	0.052	0.054	0.056	0.058
70	0.038	0.040	0.042	0.044	0.046	0.048	0.050	0.052	0.053	0.055	0.057	0.059
71	+0.039	+0.041	+0.043	+0.045	+0.047	+0.049	+0.051	+0.053	+0.055	+0.057	+0.059	+0.061
72	0.040	0.042	0.044	0.046	0.048	0.050	0.052	0.054	0.057	0.059	0.061	0.063
73	0.041	0.043	0.045	0.047	0.049	0.052	0.054	0.056	0.058	0.060	0.062	0.064
74	0.042	0.044	0.046	0.048	0.051	0.053	0.055	0.057	0.059	0.062	0.064	0.066
75	0.043	0.045	0.047	0.049	0.052	0.054	0.056	0.058	0.061	0.063	0.065	0.067
76	+0.044	+0.046	+0.048	+0.050	+0.053	+0.055	+0.057	+0.060	+0.062	+0.064	+0.066	+0.069
77	0.044	0.047	0.049	0.051	0.054	0.056	0.058	0.061	0.063	0.065	0.068	0.070
78	0.045	0.047	0.050	0.052	0.055	0.057	0.059	0.062	0.064	0.066	0.069	0.071
79	0.046	0.048	0.051	0.053	0.055	0.058	0.060	0.063	0.065	0.067	0.070	0.072
80	0.046	0.049	0.051	0.054	0.056	0.059	0.061	0.063	0.066	0.068	0.071	0.073
81	+0.047	+0.049	+0.052	+0.054	+0.057	+0.059	+0.062	+0.064	+0.067	+0.069	+0.072	+0.074
82	0.047	0.050	0.052	0.055	0.057	0.060	0.062	0.065	0.067	0.070	0.072	0.075
83	0.048	0.050	0.053	0.056	0.058	0.061	0.063	0.066	0.068	0.071	0.073	0.076
84	0.048	0.051	0.053	0.056	0.059	0.061	0.064	0.066	0.069	0.071	0.074	0.076
85	0.049	0.051	0.054	0.056	0.059	0.061	0.064	0.067	0.069	0.072	0.074	0.077
90	+0.049	+0.052	+0.055	+0.057	+0.060	+0.062	+0.065	+0.068	+0.070	+0.073	+0.075	+0.078

REDUCTION OF THE BAROMETER TO STANDARD GRAVITY.

METRIC MEASURES.

FROM LATITUDE 0° TO 45°, THE CORRECTION IS TO BE SUBTRACTED.

Latitude.	HEIGHT OF THE BAROMETER IN MILLIMETERS.													
	520	540	560	580	600	620	640	660	680	700	720	740	760	780
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	−1.39	−1.45	−1.50	−1.55	−1.61	−1.66	−1.71	−1.77	−1.82	−1.87	−1.93	−1.98	−2.04	−2.09
5	−1.37	−1.42	−1.48	−1.53	−1.58	−1.64	−1.69	−1.74	−1.79	−1.85	−1.90	−1.95	−2.00	−2.06
6	1.36	1.42	1.47	1.52	1.57	1.63	1.68	1.73	1.78	1.83	1.89	1.94	1.99	2.04
7	1.35	1.40	1.46	1.51	1.56	1.61	1.66	1.72	1.77	1.82	1.87	1.92	1.98	2.03
8	1.34	1.39	1.44	1.49	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.91	1.96	2.01
9	1.33	1.38	1.43	1.48	1.53	1.58	1.63	1.68	1.73	1.78	1.84	1.89	1.94	1.99
10	−1.31	−1.36	−1.41	−1.46	−1.51	−1.56	−1.61	−1.66	−1.71	−1.76	−1.81	−1.86	−1.92	−1.97
11	1.29	1.34	1.39	1.44	1.49	1.54	1.59	1.64	1.69	1.74	1.79	1.84	1.89	1.94
12	1.27	1.32	1.37	1.42	1.47	1.52	1.57	1.62	1.67	1.72	1.76	1.81	1.86	1.91
13	1.25	1.30	1.35	1.40	1.45	1.50	1.54	1.59	1.64	1.69	1.74	1.78	1.83	1.88
14	1.23	1.28	1.33	1.38	1.42	1.47	1.52	1.56	1.61	1.66	1.71	1.75	1.80	1.85
15	−1.21	−1.26	−1.30	−1.35	−1.40	−1.44	−1.49	−1.54	−1.58	−1.63	−1.67	−1.72	−1.77	−1.81
16	1.19	1.23	1.28	1.32	1.37	1.41	1.46	1.50	1.55	1.60	1.64	1.69	1.73	1.78
17	1.16	1.20	1.25	1.29	1.34	1.38	1.43	1.47	1.52	1.56	1.60	1.65	1.69	1.74
18	1.13	1.18	1.22	1.26	1.31	1.35	1.39	1.44	1.48	1.52	1.57	1.61	1.65	1.70
19	1.10	1.15	1.19	1.23	1.27	1.32	1.36	1.40	1.44	1.48	1.53	1.57	1.61	1.65
20	−1.07	−1.11	−1.16	−1.20	−1.24	−1.28	−1.32	−1.36	−1.40	−1.44	−1.49	−1.53	−1.57	−1.61
21	1.04	1.08	1.12	1.16	1.20	1.24	1.28	1.32	1.36	1.40	1.44	1.48	1.52	1.56
22	1.01	1.05	1.09	1.13	1.16	1.20	1.24	1.28	1.32	1.36	1.40	1.44	1.48	1.51
23	0.98	1.01	1.05	1.09	1.13	1.16	1.20	1.24	1.28	1.31	1.35	1.39	1.43	1.46
24	0.94	0.98	1.01	1.05	1.08	1.12	1.16	1.19	1.23	1.27	1.30	1.34	1.37	1.41
25	−0.90	−0.94	−0.97	−1.01	−1.04	−1.08	−1.11	−1.15	−1.18	−1.22	−1.25	−1.29	−1.32	−1.36
26	0.87	0.90	0.93	0.97	1.00	1.03	1.07	1.10	1.13	1.17	1.20	1.23	1.27	1.30
27	0.83	0.86	0.89	0.92	0.96	0.99	1.02	1.05	1.08	1.12	1.15	1.18	1.21	1.24
28	0.79	0.82	0.85	0.88	0.91	0.94	0.97	1.00	1.03	1.06	1.09	1.12	1.15	1.18
29	0.75	0.78	0.81	0.84	0.86	0.89	0.92	0.95	0.98	1.01	1.04	1.07	1.10	1.12
30	−0.71	−0.74	−0.76	−0.79	−0.82	−0.85	−0.87	−0.90	−0.93	−0.95	−0.98	−1.01	−1.04	−1.06
31	0.67	0.69	0.72	0.74	0.77	0.80	0.82	0.85	0.87	0.90	0.92	0.95	0.98	1.00
32	0.62	0.65	0.67	0.70	0.72	0.74	0.77	0.79	0.82	0.84	0.86	0.89	0.91	0.94
33	0.58	0.60	0.63	0.65	0.67	0.69	0.72	0.74	0.76	0.78	0.80	0.83	0.85	0.87
34	0.54	0.56	0.58	0.60	0.62	0.64	0.66	0.68	0.70	0.72	0.74	0.76	0.79	0.81
35	−0.49	−0.51	−0.53	−0.55	−0.57	−0.59	−0.61	−0.63	−0.64	−0.66	−0.68	−0.70	−0.72	−0.74
36	0.45	0.46	0.48	0.50	0.52	0.53	0.55	0.57	0.58	0.60	0.62	0.64	0.65	0.67
37	0.40	0.42	0.43	0.45	0.46	0.48	0.49	0.51	0.52	0.54	0.56	0.57	0.59	0.60
38	0.36	0.37	0.38	0.40	0.41	0.42	0.44	0.45	0.46	0.48	0.49	0.51	0.52	0.53
39	0.31	0.32	0.33	0.34	0.36	0.37	0.38	0.39	0.40	0.42	0.43	0.44	0.45	0.46
40	−0.26	−0.27	−0.28	−0.29	−0.30	−0.31	−0.32	−0.33	−0.34	−0.35	−0.36	−0.37	−0.38	−0.39
41	0.21	0.22	0.23	0.24	0.25	0.26	0.26	0.27	0.28	0.29	0.30	0.30	0.31	0.32
42	0.17	0.17	0.18	0.19	0.19	0.20	0.21	0.21	0.22	0.22	0.23	0.24	0.24	0.25
43	0.12	0.12	0.13	0.13	0.14	0.14	0.15	0.15	0.16	0.16	0.16	0.17	0.17	0.18
44	0.07	0.07	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.11
45	−0.02	−0.02	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.04

REDUCTION OF THE BAROMETER TO STANDARD GRAVITY.

METRIC MEASURES.

FROM LATITUDE 46° TO 90°, THE CORRECTION IS TO BE ADDED.

Latitude.	HEIGHT OF THE BAROMETER IN MILLIMETERS.													
	520	540	560	580	600	620	640	660	680	700	720	740	760	780
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
45°	−0.02	−0.02	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.03	−0.04
46	+0.02	+0.03	+0.03	+0.03	+0.03	+0.03	+0.03	+0.03	+0.03	+0.03	+0.03	+0.03	+0.04	+0.04
47	0.07	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.11
48	0.12	0.12	0.13	0.13	0.14	0.14	0.15	0.15	0.16	0.16	0.17	0.17	0.18	0.18
49	0.17	0.17	0.18	0.19	0.19	0.20	0.21	0.21	0.22	0.23	0.23	0.24	0.25	0.25
50	0.22	0.22	0.23	0.24	0.25	0.26	0.26	0.27	0.28	0.29	0.30	0.31	0.31	0.32
51	+0.26	+0.27	+0.28	+0.29	+0.30	+0.31	+0.32	+0.33	+0.34	+0.35	+0.36	+0.37	+0.38	+0.39
52	0.31	0.32	0.33	0.34	0.36	0.37	0.38	0.39	0.40	0.42	0.43	0.44	0.45	0.46
53	0.36	0.37	0.38	0.40	0.41	0.42	0.44	0.45	0.46	0.48	0.49	0.51	0.52	0.53
54	0.40	0.42	0.43	0.45	0.46	0.48	0.49	0.51	0.52	0.54	0.56	0.57	0.59	0.60
55	0.45	0.46	0.48	0.50	0.52	0.53	0.55	0.57	0.58	0.60	0.62	0.64	0.65	0.67
56	+0.49	+0.51	+0.53	+0.55	+0.57	+0.59	+0.60	+0.62	+0.64	+0.66	+0.68	+0.70	+0.72	+0.74
57	0.54	0.56	0.58	0.60	0.62	0.64	0.66	0.68	0.70	0.72	0.74	0.76	0.78	0.80
58	0.58	0.60	0.62	0.65	0.67	0.69	0.71	0.74	0.76	0.78	0.80	0.82	0.85	0.87
59	0.62	0.65	0.67	0.69	0.72	0.74	0.77	0.79	0.81	0.84	0.86	0.89	0.91	0.93
60	0.66	0.69	0.72	0.74	0.77	0.79	0.82	0.84	0.87	0.89	0.92	0.94	0.97	1.00
61	+0.71	+0.73	+0.76	+0.79	+0.81	+0.84	+0.87	+0.89	+0.92	+0.95	+0.98	+1.00	+1.03	+1.06
62	0.74	0.77	0.80	0.83	0.85	0.88	0.91	0.94	0.97	1.00	1.02	1.05	1.08	1.11
63	0.78	0.81	0.85	0.88	0.91	0.94	0.97	1.00	1.03	1.06	1.09	1.12	1.15	1.18
64	0.82	0.85	0.89	0.92	0.95	0.98	1.01	1.04	1.08	1.11	1.14	1.17	1.20	1.23
65	0.86	0.89	0.93	0.96	0.99	1.03	1.06	1.09	1.13	1.16	1.19	1.22	1.26	1.29
66	+0.90	+0.93	+0.97	+1.00	+1.04	+1.07	+1.10	+1.14	+1.17	+1.21	+1.24	+1.28	+1.31	+1.35
67	0.93	0.97	1.00	1.04	1.08	1.11	1.15	1.18	1.22	1.25	1.29	1.33	1.36	1.40
68	0.97	1.00	1.04	1.08	1.11	1.15	1.19	1.23	1.26	1.30	1.34	1.37	1.41	1.45
69	1.00	1.04	1.08	1.11	1.15	1.19	1.23	1.27	1.31	1.34	1.38	1.42	1.46	1.50
70	1.03	1.07	1.11	1.15	1.19	1.23	1.27	1.31	1.35	1.39	1.43	1.47	1.51	1.55
71	+1.06	+1.10	+1.14	+1.18	+1.22	+1.26	+1.31	+1.35	+1.39	+1.43	+1.47	+1.51	+1.55	+1.59
72	1.09	1.13	1.17	1.22	1.26	1.30	1.34	1.38	1.42	1.47	1.51	1.55	1.59	1.63
73	1.12	1.16	1.20	1.25	1.29	1.33	1.37	1.42	1.46	1.50	1.55	1.59	1.63	1.67
74	1.14	1.19	1.23	1.28	1.32	1.36	1.41	1.45	1.50	1.54	1.58	1.63	1.67	1.72
75	1.17	1.21	1.26	1.30	1.35	1.39	1.44	1.48	1.53	1.57	1.62	1.66	1.71	1.75
76	+1.19	+1.24	+1.28	+1.33	+1.37	+1.42	+1.47	+1.51	+1.56	+1.60	+1.65	+1.70	+1.74	+1.79
77	1.21	1.26	1.31	1.35	1.40	1.45	1.49	1.54	1.59	1.63	1.68	1.73	1.77	1.82
78	1.23	1.28	1.33	1.38	1.42	1.47	1.52	1.57	1.61	1.66	1.71	1.76	1.80	1.85
79	1.25	1.30	1.35	1.40	1.45	1.49	1.54	1.59	1.64	1.69	1.73	1.78	1.83	1.88
80	1.27	1.32	1.37	1.42	.147	1.51	1.56	1.61	1.66	1.71	1.76	1.81	1.86	1.90
81	+1.29	+1.33	+1.38	+1.43	+1.48	+1.53	+1.58	+1.63	+1.68	+1.73	+1.78	+1.83	+1.88	+1.93
82	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95
83	1.31	1.36	1.41	1.46	1.51	1.56	1.61	1.67	1.72	1.77	1.82	1.87	1.92	1.97
84	1.32	1.37	1.42	1.48	1.53	1.58	1.63	1.68	1.73	1.78	1.83	1.88	1.93	1.98
85	1.33	1.38	1.43	1.49	1.54	1.59	1.64	1.69	1.74	1.79	1.84	1.90	1.95	2.00
90	+1.35	+1.41	+1.46	+1.51	+1.56	+1.61	+1.67	+1.72	+1.77	+1.82	+1.87	+1.93	+1.98	+2.03

DETERMINATION OF HEIGHTS BY THE BAROMETER.

ENGLISH MEASURES.

Values of $60368 \, [1 + 0.0010195 \times 36] \log \frac{29.90}{B}$.

Barometric Pressure. B.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
Inches.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
12.00	24814	24791	24769	24746	24723	24701	24678	24656	24633	24611
12.10	24588	24566	24543	24521	24499	24476	24454	24431	24409	24387
12.20	24365	24342	24320	24298	24276	24253	24231	24209	24187	24165
12.30	24143	24121	24098	24076	24054	24032	24010	23988	23966	23944
12.40	23923	23901	23879	23857	23835	23813	23791	23770	23748	23726
12.50	23704	23682	23661	23639	23617	23596	23574	23552	23531	23509
12.60	23488	23466	23445	23423	23402	23380	23359	23337	23316	23294
12.70	23273	23251	23230	23209	23187	23166	23145	23123	23102	23081
12.80	23060	23038	23017	22996	22975	22954	22933	22911	22890	22869
12.90	22848	22827	22806	22785	22764	22743	22722	22701	22680	22659
13.00	22638	22617	22596	22576	22555	22534	22513	22492	22471	22451
13.10	22430	22409	22388	22368	22347	22326	22306	22285	22264	22244
13.20	22223	22203	22182	22162	22141	22121	22100	22080	22059	22039
13.30	22018	21998	21977	21957	21937	21916	21896	21876	21855	21835
13.40	21815	21794	21774	21754	21734	21713	21693	21673	21653	21633
13.50	21612	21592	21572	21552	21532	21512	21492	21472	21452	21432
13.60	21412	21392	21372	21352	21332	21312	21292	21272	21252	21233
13.70	21213	21193	21173	21153	21134	21114	21094	21074	21054	21035
13.80	21015	20995	20976	20956	20936	20917	20897	20878	20858	20838
13.90	20819	20799	20780	20760	20741	20721	20702	20682	20663	20643
14.00	20624	20605	20585	20566	20546	20527	20508	20488	20469	20450
14.10	20431	20411	20392	20373	20354	20334	20315	20296	20277	20258
14.20	20238	20219	20200	20181	20162	20143	20124	20105	20086	20067
14.30	20048	20029	20010	19991	19972	19953	19934	19915	19896	19877
14.40	19858	19839	19821	19802	19783	19764	19745	19727	19708	19689
14.50	19670	19651	19633	19614	19595	19577	19558	19539	19521	19502
14.60	19483	19465	19446	19428	19409	19390	19372	19353	19335	19316
14.70	19298	19279	19261	19242	19224	19206	19187	19169	19150	19132
14.80	19114	19095	19077	19059	19040	19022	19004	18985	18967	18949
14.90	18931	18912	18894	18876	18858	18840	18821	18803	18785	18767
15.00	18749	18731	18713	18694	18676	18658	18640	18622	18604	18586
15.10	18568	18550	18532	18514	18496	18478	18460	18442	18425	18407
15.20	18389	18371	18353	18335	18317	18300	18282	18264	18246	18228
15.30	18211	18193	18175	18157	18140	18122	18104	18086	18069	18051
15.40	18033	18016	17998	17981	17963	17945	17928	17910	17893	17875
15.50	17858	17840	17823	17805	17788	17770	17753	17735	17718	17700
15.60	17683	17665	17648	17631	17613	17596	17578	17561	17544	17526
15.70	17509	17492	17474	17457	17440	17423	17405	17388	17371	17354
15.80	17337	17319	17302	17285	17268	17251	17234	17216	17199	17182
15.90	17165	17148	17131	17114	17097	17080	17063	17046	17029	17012
16.00	16995	16978	16961	16944	16927	16910	16893	16876	16859	16842
16.10	16825	16808	16792	16775	16758	16741	16724	16707	16691	16674
16.20	16657	16640	16623	16607	16590	16573	16557	16540	16523	16506
16.30	16490	16473	16456	16440	16423	16406	16390	16373	16357	16340
16.40	16324	16307	16290	16274	16257	16241	16224	16208	16191	16175
16.50	16158	16142	16125	16109	16092	16076	16060	16043	16027	16010
16.60	15994	15978	15961	15945	15929	15912	15896	15880	15863	15847
16.70	15831	15815	15798	15782	15766	15750	15733	15717	15701	15685
16.80	15669	15652	15636	15620	15604	15588	15572	15556	15539	15523
16.90	15507	15491	15475	15459	15443	15427	15411	15395	15379	15363
17.00	15347	15331	15315	15299	15283	15267	15251	15235	15219	15203

DETERMINATION OF HEIGHTS BY THE BAROMETER.

ENGLISH MEASURES.

Values of $60368\ [1 + 0.0010195 \times 36]\ \log \frac{29.90}{B}$.

Barometric Pressure. B.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
Inches.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
17.00	15347	15331	15315	15299	15283	15267	15251	15235	15219	15203
17.10	15187	15172	15156	15140	15124	15108	15092	15076	15061	15045
17.20	15029	15013	14997	14982	14966	14950	14934	14919	14903	14887
17.30	14871	14856	14840	14824	14809	14793	14777	14762	14746	14730
17.40	14715	14699	14684	14668	14652	14637	14621	14606	14590	14575
17.50	14559	14544	14528	14512	14497	14481	14466	14451	14435	14420
17.60	14404	14389	14373	14358	14342	14327	14312	14296	14281	14266
17.70	14250	14235	14219	14204	14189	14173	14158	14143	14128	14112
17.80	14097	14082	14067	14051	14036	14021	14006	13990	13975	13960
17.90	13945	13930	13914	13899	13884	13869	13854	13839	13824	13808
18.00	13793	13778	13763	13748	13733	13718	13703	13688	13673	13658
18.10	13643	13628	13613	13598	13583	13568	13553	13538	13523	13508
18.20	13493	13478	13463	13448	13433	13418	13404	13389	13374	13359
18.30	13344	13329	13314	13300	13285	13270	13255	13240	13226	13211
18.40	13196	13181	13166	13152	13137	13122	13107	13093	13078	13063
18.50	13049	13034	13019	13005	12990	12975	12961	12946	12931	12917
18.60	12902	12888	12873	12858	12844	12829	12815	12800	12785	12771
18.70	12756	12742	12727	12713	12698	12684	12669	12655	12640	12626
18.80	12611	12597	12583	12568	12554	12539	12525	12510	12496	12482
18.90	12467	12453	12438	12424	12410	12395	12381	12367	12352	12338
19.00	12324	12310	12295	12281	12267	12252	12238	12224	12210	12195
19.10	12181	12167	12153	12138	12124	12110	12096	12082	12068	12053
19.20	12039	12025	12011	11997	11983	11969	11954	11940	11926	11912
19.30	11898	11884	11870	11856	11842	11828	11814	11800	11786	11772
19.40	11758	11744	11730	11716	11702	11688	11674	11660	11646	11632
19.50	11618	11604	11590	11576	11562	11548	11534	11520	11507	11493
19.60	11479	11465	11451	11437	11423	11410	11396	11382	11368	11354
19.70	11340	11327	11313	11299	11285	11272	11258	11244	11230	11217
19.80	11203	11189	11175	11162	11148	11134	11121	11107	11093	11080
19.90	11066	11052	11039	11025	11011	10998	10984	10970	10957	10943
20.00	10930	10916	10903	10889	10875	10862	10848	10835	10821	10808
20.10	10794	10781	10767	10754	10740	10727	10713	10700	10686	10673
20.20	10659	10646	10632	10619	10605	10592	10579	10565	10552	10538
20.30	10525	10512	10498	10485	10472	10458	10445	10431	10418	10405
20.40	10391	10378	10365	10352	10338	10325	10312	10298	10285	10272
20.50	10259	10245	10232	10219	10206	10192	10179	10166	10153	10139
20.60	10126	10113	10100	10087	10074	10060	10047	10034	10021	10008
20.70	9995	9982	9968	9955	9942	9929	9916	9903	9890	9877
20.80	9864	9851	9838	9825	9812	9799	9786	9772	9759	9746
20.90	9733	9720	9707	9694	9681	9668	9655	9642	9629	9617
21.00	9604	9591	9578	9565	9552	9539	9526	9513	9500	9487
21.10	9474	9462	9449	9436	9423	9410	9397	9384	9372	9359
21.20	9346	9333	9320	9307	9295	9282	9269	9256	9244	9231
21.30	9218	9205	9193	9180	9167	9154	9142	9129	9116	9103
21.40	9091	9078	9065	9053	9040	9027	9015	9002	8989	8977
21.50	8964	8951	8939	8926	8913	8901	8888	8876	8863	8850
21.60	8838	8825	8813	8800	8788	8775	8762	8750	8737	8725
21.70	8712	8700	8687	8675	8662	8650	8637	8625	8612	8600
21.80	8587	8575	8562	8550	8538	8525	8513	8500	8488	8475
21.90	8463	8451	8438	8426	8413	8401	8389	8376	8364	8352
22.00	8339	8327	8314	8302	8290	8277	8265	8253	8240	8228

DETERMINATION OF HEIGHTS BY THE BAROMETER.

ENGLISH MEASURES.

Values of $60368\ [1 + 0.0010195 \times 36] \log \frac{29.90}{B}$.

Barometric Pressure. B.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
Inches.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
22.00	8339	8327	8314	8302	8290	8277	8265	8253	8240	8228
22.10	8216	8204	8191	8179	8167	8154	8142	8130	8118	8105
22.20	8093	8081	8069	8056	8044	8032	8020	8008	7995	7983
22.30	7971	7959	7947	7935	7922	7910	7898	7886	7874	7862
22.40	7849	7837	7825	7813	7801	7789	7777	7765	7753	7740
22.50	7728	7716	7704	7692	7680	7668	7656	7644	7632	7620
22.60	7608	7596	7584	7572	7560	7548	7536	7524	7512	7500
22.70	7488	7476	7464	7452	7440	7428	7416	7404	7392	7380
22.80	7368	7356	7345	7333	7321	7309	7297	7285	7273	7261
22.90	7249	7238	7226	7214	7202	7190	7178	7166	7155	7143
23.00	7131	7119	7107	7096	7084	7072	7060	7048	7037	7025
23.10	7013	7001	6990	6978	6966	6954	6943	6931	6919	6907
23.20	6896	6884	6872	6861	6849	6837	6825	6814	6802	6790
23.30	6779	6767	6755	6744	6732	6721	6709	6697	6686	6674
23.40	6662	6651	6639	6628	6616	6604	6593	6581	6570	6558
23.50	6546	6535	6523	6512	6500	6489	6477	6466	6454	6443
23.60	6431	6420	6408	6397	6385	6374	6362	6351	6339	6328
23.70	6316	6305	6293	6282	6270	6259	6247	6236	6225	6213
23.80	6202	6190	6179	6167	6156	6145	6133	6122	6110	6099
23.90	6088	6076	6065	6054	6042	6031	6020	6008	5997	5986
24.00	5974	5963	5952	5940	5929	5918	5906	5895	5884	5872
24.10	5861	5850	5839	5827	5816	5805	5794	5782	5771	5760
24.20	5749	5737	5726	5715	5704	5693	5681	5670	5659	5648
24.30	5637	5625	5614	5603	5592	5581	5570	5558	5547	5536
24.40	5525	5514	5503	5492	5480	5469	5458	5447	5436	5425
24.50	5414	5403	5392	5381	5369	5358	5347	5336	5325	5314
24.60	5303	5292	5281	5270	5259	5248	5237	5226	5215	5204
24.70	5193	5182	5171	5160	5149	5138	5127	5116	5105	5094
24.80	5083	5072	5061	5050	5039	5028	5017	5006	4995	4985
24.90	4974	4963	4952	4941	4930	4919	4908	4897	4886	4876
25.00	4865	4854	4843	4832	4821	4810	4800	4789	4778	4767
25.10	4756	4745	4735	4724	4713	4702	4691	4681	4670	4659
25.20	4648	4637	4627	4616	4605	4594	4584	4573	4562	4551
25.30	4540	4530	4519	4508	4498	4487	4476	4465	4455	4444
25.40	4433	4423	4412	4401	4391	4380	4369	4358	4348	4337
25.50	4326	4316	4305	4295	4284	4273	4263	4252	4241	4231
25.60	4220	4209	4199	4188	4178	4167	4156	4146	4135	4125
25.70	4114	4104	4093	4082	4072	4061	4051	4040	4030	4019
25.80	4009	3998	3988	3977	3966	3956	3945	3935	3924	3914
25.90	3903	3893	3882	3872	3861	3851	3841	3830	3820	3809
26.00	3799	3788	3778	3767	3757	3746	3736	3726	3715	3705
26.10	3694	3684	3674	3663	3653	3642	3632	3622	3611	3601
26.20	3590	3580	3570	3559	3549	3539	3528	3518	3508	3497
26.30	3487	3477	3466	3456	3446	3435	3425	3415	3404	3394
26.40	3384	3373	3363	3353	3343	3332	3322	3312	3301	3291
26.50	3281	3270	3260	3250	3240	3230	3219	3209	3199	3189

DETERMINATION OF HEIGHTS BY THE BAROMETER.

ENGLISH MEASURES.

Values of $60368\,[1+0.0010195\times 36]\log\frac{29.90}{B}$.

Barometric Pressure. B.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
Inches.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
26.50	3281	3270	3260	3250	3240	3230	3219	3209	3199	3189
26.60	3179	3168	3158	3148	3138	3128	3117	3107	3097	3087
26.70	3077	3066	3056	3046	3036	3026	3016	3005	2995	2985
26.80	2975	2965	2955	2945	2934	2924	2914	2904	2894	2884
26.90	2874	2864	2854	2843	2833	2823	2813	2803	2793	2783
27.00	2773	2763	2753	2743	2733	2723	2713	2703	2692	2682
27.10	2672	2662	2652	2642	2632	2622	2612	2602	2592	2582
27.20	2572	2562	2552	2542	2532	2522	2512	2502	2493	2483
27.30	2473	2463	2453	2443	2433	2423	2413	2403	2393	2383
27.40	2373	2363	2353	2343	2334	2324	2314	2304	2294	2284
27.50	2274	2264	2254	2245	2235	2225	2215	2205	2195	2185
27.60	2176	2166	2156	2146	2136	2126	2116	2107	2097	2087
27.70	2077	2067	2058	2048	2038	2028	2018	2009	1999	1989
27.80	1979	1970	1960	1950	1940	1930	1921	1911	1901	1891
27.90	1882	1872	1862	1852	1843	1833	1823	1814	1804	1794
28.00	1784	1775	1765	1755	1746	1736	1726	1717	1707	1697
28.10	1688	1678	1668	1659	1649	1639	1630	1620	1610	1601
28.20	1591	1581	1572	1562	1552	1543	1533	1524	1514	1504
28.30	1495	1485	1476	1466	1456	1447	1437	1428	1418	1408
28.40	1399	1389	1380	1370	1361	1351	1342	1332	1322	1313
28.50	1303	1294	1284	1275	1265	1256	1246	1237	1227	1218
28.60	1208	1199	1189	1180	1170	1161	1151	1142	1132	1123
28.70	1113	1104	1094	1085	1075	1066	1057	1047	1038	1028
28.80	1019	1009	1000	990	981	972	962	953	943	934
28.90	925	915	906	896	887	878	868	859	849	840
29.00	831	821	812	803	793	784	775	765	756	746
29.10	737	728	718	709	700	690	681	672	663	653
29.20	644	635	625	616	607	597	588	579	570	560
29.30	551	542	532	523	514	505	495	486	477	468
29.40	458	449	440	431	421	412	403	394	384	375
29.50	366	357	348	338	329	320	311	302	292	283
29.60	274	265	256	247	237	228	219	210	201	192
29.70	182	173	164	155	146	137	128	118	109	100
29.80	+ 91	+ 82	+ 73	+ 64	+ 55	+ 45	+ 36	+ 27	+ 18	+ 9
29.90	0	− 9	− 18	− 27	− 36	− 45	− 55	− 64	− 73	− 82
30.00	− 91	− 100	− 109	− 118	− 127	− 136	− 145	− 154	− 163	− 172
30.10	− 181	− 190	− 199	− 208	− 217	− 226	− 235	− 244	− 253	− 262
30.20	− 271	− 280	− 289	− 298	− 307	− 316	− 325	− 334	− 343	− 352
30.30	− 361	− 370	− 379	− 388	− 397	− 406	− 415	− 424	− 433	− 442
30.40	− 451	− 460	− 469	− 478	− 486	− 495	− 504	− 513	− 522	− 531
30.50	− 540	− 549	− 558	− 567	− 576	− 585	− 593	− 602	− 611	− 620
30.60	− 629	− 638	− 647	− 656	− 665	− 673	− 682	− 691	− 700	− 709
30.70	− 718	− 727	− 735	− 744	− 753	− 762	− 771	− 780	− 788	− 797
30.80	− 806	− 815	− 824	− 833	− 841	− 850	− 859	− 868	− 877	− 885

DETERMINATION OF HEIGHTS BY THE BAROMETER.

ENGLISH MEASURES.

Term for Temperature: $0.002039\ (\theta - 50^\circ)\ z.$

For temperatures { above 50° F. / below 50° F. } the values are to be { added. / subtracted.

Mean Temperature. θ.		APPROXIMATE DIFFERENCE OF HEIGHT OBTAINED FROM TABLE 20.												
		20	40	60	80	100	200	300	400	500	600	700	800	900
F.	F.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
49°	51°	0	0	0	0	0	0	1	1	1	1	1	2	2
48	52	0	0	0	0	0	1	1	2	2	2	3	3	4
47	53	0	0	0	0	1	1	2	2	3	4	4	5	6
46	54	0	0	0	1	1	2	2	3	4	5	6	7	7
45	55	0	0	1	1	1	2	3	4	5	6	7	8	9
44	56	0	0	1	1	1	2	4	5	6	7	9	10	11
43	57	0	1	1	1	1	3	4	6	7	9	10	11	13
42	58	0	1	1	1	2	3	5	7	8	10	11	13	15
41	59	0	1	1	1	2	4	6	7	9	11	13	15	17
40	60	0	1	1	2	2	4	6	8	10	12	14	16	18
39	61	0	1	1	2	2	4	7	9	11	13	16	18	20
38	62	0	1	1	2	2	5	7	10	12	15	17	20	22
37	63	1	1	2	2	3	5	8	11	13	16	19	21	24
36	64	1	1	2	2	3	6	9	11	14	17	20	23	26
35	65	1	1	2	2	3	6	9	12	15	18	21	24	28
34	66	1	1	2	3	3	7	10	13	16	20	23	26	29
33	67	1	1	2	3	3	7	10	14	17	21	24	28	31
32	68	1	1	2	3	4	7	11	15	18	22	26	29	33
31	69	1	2	2	3	4	8	12	15	19	23	27	31	35
30	70	1	2	2	3	4	8	12	16	20	24	29	33	37
29	71	1	2	3	3	4	9	13	17	21	26	30	34	39
28	72	1	2	3	4	4	9	13	18	22	27	31	36	40
27	73	1	2	3	4	5	9	14	19	23	28	33	38	42
26	74	1	2	3	4	5	10	15	20	24	29	34	39	44
25	75	1	2	3	4	5	10	15	20	25	31	36	41	46
24	76	1	2	3	4	5	11	16	21	27	32	37	42	48
23	77	1	2	3	4	6	11	17	22	28	33	39	44	50
22	78	1	2	3	5	6	11	17	23	29	34	40	46	51
21	79	1	2	4	5	6	12	18	24	30	35	41	47	53
20	80	1	2	4	5	6	12	18	24	31	37	43	49	55
19	81	1	3	4	5	6	13	19	25	32	38	44	51	57
18	82	1	3	4	5	7	13	20	26	33	39	46	52	59
17	83	1	3	4	5	7	13	20	27	34	40	47	54	61
16	84	1	3	4	6	7	14	21	28	35	42	49	55	62
15	85	1	3	4	6	7	14	21	29	36	43	50	57	64
14	86	1	3	4	6	7	15	22	29	37	44	51	59	66
13	87	2	3	5	6	8	15	23	30	38	45	53	60	68
12	88	2	3	5	6	8	15	23	31	39	46	54	62	70
11	89	2	3	5	6	8	16	24	32	40	48	56	64	72
10	90	2	3	5	7	8	16	24	33	41	49	57	65	73
9	91	2	3	5	7	8	17	25	33	42	50	59	67	75
8	92	2	3	5	7	9	17	26	34	43	51	60	69	77
7	93	2	4	5	7	9	18	26	35	44	53	61	70	79
6	94	2	4	5	7	9	18	27	36	45	54	63	72	81
5	95	2	4	6	7	9	18	28	37	46	55	64	73	83
4	96	2	4	6	8	9	19	28	38	47	56	66	75	84
3	97	2	4	6	8	10	19	29	38	48	57	67	77	86
2	98	2	4	6	8	10	20	29	39	49	59	69	78	88
1	99	2	4	6	8	10	20	30	40	50	60	70	80	90
0	100	2	4	6	8	10	20	31	41	51	61	71	82	92

DETERMINATION OF HEIGHTS BY THE BAROMETER.

ENGLISH MEASURES.

Term for Temperature: $0.002039\ (\theta - 50^\circ)\ z.$

For temperatures $\left\{ \begin{array}{l} \text{above } 50^\circ \text{ F.} \\ \text{below } 50^\circ \text{ F.} \end{array} \right\}$ the values are to be $\left\{ \begin{array}{l} \text{added.} \\ \text{subtracted.} \end{array} \right.$

Mean Temperature. θ.		APPROXIMATE DIFFERENCE OF HEIGHT OBTAINED FROM TABLE 20.										
		1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	20000
F.	F.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
49°	51°	2	4	6	8	10	12	14	16	18	20	41
48	52	4	8	12	16	20	24	29	33	37	41	82
47	53	6	12	18	24	31	37	43	49	55	61	122
46	54	8	16	24	33	41	49	57	65	73	82	163
45	55	10	20	31	41	51	61	71	82	92	102	204
44	56	12	24	37	49	61	73	86	98	110	122	245
43	57	14	29	43	57	71	86	100	114	128	143	285
42	58	16	33	49	65	82	98	114	130	147	163	326
41	59	18	37	55	73	92	110	128	147	165	184	367
40	60	20	41	61	82	102	122	143	163	184	204	408
39	61	22	45	67	90	112	135	157	179	202	224	449
38	62	24	49	73	98	122	147	171	196	220	245	489
37	63	27	53	80	106	133	159	186	212	239	265	530
36	64	29	57	86	114	143	171	200	228	257	285	571
35	65	31	61	92	122	153	184	214	245	275	306	612
34	66	33	65	98	130	163	196	228	261	294	326	652
33	67	35	69	104	139	173	208	243	277	312	347	693
32	68	37	73	110	147	184	220	257	294	330	367	734
31	69	39	77	116	155	194	232	271	310	349	387	775
30	70	41	82	122	163	204	245	285	326	367	408	816
29	71	43	86	128	171	214	257	300	343	385	428	856
28	72	45	90	135	179	224	269	314	359	404	449	897
27	73	47	94	141	188	234	281	328	375	422	469	938
26	74	49	98	147	196	245	294	343	391	440	489	979
25	75	51	102	153	204	255	306	357	408	459	510	1020
24	76	53	106	159	212	265	318	371	424	477	530	1060
23	77	55	110	165	220	275	330	385	440	495	551	1101
22	78	57	114	171	228	285	343	400	457	514	571	1142
21	79	59	118	177	236	296	355	414	473	532	591	1183
20	80	61	122	184	245	306	367	428	489	551	612	1223
19	81	63	126	190	253	316	379	442	506	569	632	1264
18	82	65	130	196	261	326	391	457	522	587	652	1305
17	83	67	135	202	269	336	404	471	538	606	673	1346
16	84	69	139	208	277	347	416	485	555	624	693	1387
15	85	71	143	214	285	357	428	500	571	642	714	1427
14	86	73	147	220	294	367	440	514	587	661	734	1468
13	87	75	151	226	302	377	453	528	604	679	754	1509
12	88	77	155	232	310	387	465	542	620	697	775	1550
11	89	80	159	239	318	398	477	557	636	716	795	1590
10	90	82	163	245	326	408	489	571	652	734	816	1631
9	91	84	167	251	334	418	502	585	669	752	836	1672
8	92	86	171	257	343	428	514	599	685	771	856	1713
7	93	88	175	263	351	438	526	614	701	789	877	1754
6	94	90	179	269	359	449	538	628	718	807	897	1794
5	95	92	184	275	367	459	551	642	734	826	918	1835
4	96	94	188	281	375	469	563	657	750	844	938	1876
3	97	96	192	287	383	479	575	671	767	862	958	1917
2	98	98	196	294	391	489	587	685	783	881	979	1957
1	99	100	200	300	400	500	599	699	799	899	999	1998
0	100	102	204	306	408	510	612	714	816	918	1020	2039

DETERMINATION OF HEIGHTS BY THE BAROMETER.

ENGLISH MEASURES.

Correction for Gravity and Weight of Mercury: $z(0.002640 \cos 2\phi - 0.000007 \cos^2 2\phi + 0.00244)$.

Latitude. ϕ	APPROXIMATE DIFFERENCE OF HEIGHT OBTAINED FROM TABLES 51-52.										
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
0°	+3	+5	+8	+10	+13	+15	+18	+20	+23	+25	+28
2	3	5	8	10	13	15	18	20	23	25	28
4	3	5	8	10	13	15	18	20	23	25	28
6	3	5	8	10	13	15	18	20	23	25	28
8	2	5	7	10	12	15	17	20	22	25	27
10	+2	+5	+7	+10	+12	+15	+17	+20	+22	+25	+27
12	2	5	7	10	12	15	17	19	22	24	27
14	2	5	7	10	12	14	17	19	21	24	26
16	2	5	7	9	12	14	16	19	21	23	26
18	2	5	7	9	11	14	16	18	21	23	25
20	+2	+4	+7	+ 9	+11	+13	+16	+18	+20	+22	+24
22	2	4	6	9	11	13	15	17	19	22	24
24	2	4	6	8	10	13	15	17	19	21	23
26	2	4	6	8	10	12	14	16	18	20	22
28	2	4	6	8	10	12	14	16	18	20	21
30	+2	+4	+6	+ 8	+ 9	+11	+13	+15	+17	+19	+21
32	2	4	5	7	9	11	13	14	16	18	20
34	2	3	5	7	9	10	12	14	15	17	19
36	2	3	5	6	8	10	11	13	15	16	18
38	2	3	5	6	8	9	11	12	14	15	17
40	+1	+3	+4	+ 6	+ 7	+ 9	+10	+12	+13	+14	+16
42	1	3	4	5	7	8	9	11	12	13	15
44	1	3	4	5	6	8	9	10	11	13	14
45	+1	+2	+4	+ 5	+ 6	+ 7	+ 9	+10	+11	+12	+13
46	+1	+2	+4	+ 5	+ 6	+ 7	+ 8	+ 9	+11	+12	+13
48	1	2	3	4	5	6	8	9	10	11	12
50	1	2	3	4	5	6	7	8	9	10	11
52	+1	+2	+3	+ 4	+ 4	+ 5	+ 6	+ 7	+ 8	+ 9	+10
54	1	2	2	3	4	5	6	6	7	8	9
56	1	1	2	3	4	4	5	6	7	7	8
58	1	1	2	3	3	4	4	5	6	6	7
60	1	1	2	2	3	3	4	4	5	6	6
62	0	+1	+1	+ 2	+ 2	+ 3	+ 3	+ 4	+ 4	+ 5	+ 5
64	0	1	1	2	2	2	3	4	3	4	4
66	0	1	1	1	2	2	2	3	3	3	3
68	0	1	1	1	1	2	2	2	2	3	3
70	0	0	1	1	1	1	1	2	2	2	2
72	0	0	0	0	+ 1	+ 1	+ 1	+ 1	+ 1	+ 1	+ 1
74	0	0	0	0	0	1	1	1	1	1	1
76	0	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0

DETERMINATION OF HEIGHTS BY THE BAROMETER.

ENGLISH MEASURES.

Correction for Gravity and Weight of Mercury : $z(0.002640 \cos 2\phi - 0.000007 \cos^2 2\phi + 0.00244)$.

Latitude. ϕ	APPROXIMATE DIFFERENCE OF HEIGHT OBTAINED FROM TABLES 51-52.										
	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	20000
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
0°	+30	+35	+41	+46	+51	+56	+61	+66	+71	+76	+101
2	30	35	40	46	51	56	61	66	71	76	101
4	30	35	40	45	50	55	61	66	71	76	101
6	30	35	40	45	50	55	61	66	71	76	100
8	30	35	40	45	50	55	60	65	70	75	99
10	+29	+34	+39	+44	+49	+54	+59	+64	+69	+74	+ 98
12	29	34	39	44	48	53	58	63	68	73	97
14	29	33	38	43	48	52	57	62	67	71	95
16	28	33	37	42	47	51	56	61	65	70	93
18	27	32	37	41	46	50	55	59	64	68	91
20	+27	+31	+36	+40	+45	+49	+53	+58	+62	+67	+ 89
22	26	30	35	39	43	48	52	56	61	65	87
24	25	29	34	38	42	46	50	55	59	63	84
26	24	28	32	37	41	45	49	53	57	61	81
28	23	27	31	35	39	43	47	51	55	59	78
30	+23	+26	+30	+34	+38	+41	+45	+49	+53	+56	+ 75
32	22	25	29	32	36	40	43	47	50	54	72
34	21	24	27	31	34	38	41	44	48	51	68
36	20	23	26	29	32	36	39	42	46	49	65
38	18	22	25	28	31	34	37	40	43	46	61
40	+17	+20	+23	+26	+29	+32	+35	+38	+41	+43	+ 57
42	16	19	22	24	27	30	33	35	38	41	54
44	15	18	20	23	25	28	30	33	35	38	50
45	+15	+17	+19	+22	+24	+27	+29	+32	+34	+37	+ 49
46	+14	+16	+19	+21	+23	+26	+28	+30	+33	+35	+ 46
48	13	15	17	19	22	24	26	28	30	32	43
50	12	14	16	18	20	22	24	26	28	30	40
52	+11	+13	+14	+16	+18	+20	+22	+23	+25	+27	+ 36
54	10	11	13	15	16	18	19	21	23	24	32
56	9	10	12	13	14	16	17	19	20	22	29
58	8	9	10	11	13	14	15	17	18	19	26
60	7	8	9	10	11	12	13	14	16	17	22
62	+ 6	+ 7	+ 8	+ 9	+10	+11	+11	+12	+13	+14	+ 19
64	5	6	6	7	8	9	10	10	11	12	16
66	4	5	5	6	7	7	8	9	9	10	13
68	3	4	4	5	5	6	6	7	7	8	11
70	2	3	3	4	4	4	5	5	6	6	8
72	+ 2	+ 2	+ 2	+ 3	+ 3						
74	+ 1	+ 1	+ 2	+ 2	+ 2						
76	+ 1	+ 1	+ 1	+ 1	+ 1						
78	0	0	0	0	0						
80	0	0	0	0	− 1						

DETERMINATION OF HEIGHTS BY THE BAROMETER.

ENGLISH MEASURES.

Correction for an Average Degree of Humidity.

Mean Temperature.	APPROXIMATE DIFFERENCE OF HEIGHT OBTAINED FROM TABLES 51-52											
	500	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	20000
F.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
−20°	0	0	0	0	0	0	0	+1	+1	+1	+1	+2
−16	0	0	0	+1	+1	+1	+1	1	2	2	2	4
−12	0	0	+1	1	1	2	2	2	3	3	3	6
−8	0	0	1	1	2	2	3	3	4	4	4	9
−6	0	0	1	1	2	2	3	3	4	4	5	10
−4	0	+1	1	2	2	3	3	4	4	5	6	11
−2	0	1	1	2	2	3	4	4	5	6	6	12
0	0	1	1	2	3	3	4	5	5	6	7	14
+2	0	1	1	2	3	4	4	5	6	7	7	15
4	0	1	2	2	3	4	5	6	7	7	8	16
6	0	1	2	3	4	4	5	6	7	8	9	18
8	0	1	2	3	4	5	6	7	8	9	10	19
10	+1	1	2	3	4	5	6	7	8	9	10	21
12	1	1	2	3	4	6	7	8	9	10	11	22
14	1	1	2	4	5	6	7	8	9	11	12	24
16	1	1	3	4	5	6	8	9	10	11	13	25
18	1	1	3	4	5	7	8	9	11	12	13	27
20	1	1	3	4	6	7	9	10	11	13	14	29
22	1	2	3	5	6	8	9	11	12	14	15	31
24	1	2	3	5	7	8	10	11	13	15	16	33
26	1	2	3	5	7	9	10	12	14	16	17	35
28	1	2	4	6	7	9	11	13	15	17	19	37
30	1	2	4	6	8	10	12	14	16	18	20	41
32	1	2	4	7	9	11	13	16	18	20	22	44
34	1	2	5	7	10	12	15	17	19	22	24	49
36	1	3	5	8	11	13	16	19	21	24	27	53
38	1	3	6	9	12	15	18	21	23	26	29	59
40	2	3	6	10	13	16	19	23	26	29	32	64
42	2	4	7	11	14	18	21	25	28	32	35	71
44	2	4	8	12	15	19	23	27	31	35	39	77
46	2	4	8	13	17	21	25	29	34	38	42	84
48	2	5	9	14	18	23	27	32	37	41	46	92
50	2	5	10	15	20	25	30	35	40	45	50	99
52	3	5	11	16	21	27	32	37	43	48	53	107
54	3	6	11	17	23	29	34	40	46	51	57	114
56	3	6	12	18	24	30	37	43	49	55	61	122
58	3	6	13	19	26	32	39	45	52	58	65	130
60	3	7	14	21	27	34	41	48	55	62	69	137
62	4	7	14	22	29	36	43	51	58	65	72	145
64	4	8	15	23	30	38	46	53	61	69	76	152
66	4	8	16	24	32	40	48	56	64	72	80	160
68	4	8	17	25	34	42	50	59	67	76	84	168
70	4	9	18	26	35	44	53	61	70	79	88	175
72	5	9	18	27	37	46	55	64	73	82	91	183
76	5	10	20	30	40	49	59	69	79	89	99	198
80	5	11	21	32	43	53	64	75	85	96	106	213
84	6	11	23	34	46	57	68	80	91	103	114	228
88	6	12	24	37	49	61	73	85	97	110	122	243
92	6	13	26	39	52	65	78	91	103	116	129	259
96	7	14	27	41	55	68	82	96	110	123	137	274

DETERMINATION OF HEIGHTS BY THE BAROMETER.

ENGLISH MEASURES.

Correction for the Variation of Gravity with Altitude: $\frac{z(z+2h_0)}{R}$.

Approximate difference of height. Z.	HEIGHT OF LOWER STATION IN FEET (h_0).											
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	12000
Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
500	0	0	0	0	0	0	0	0	0	0	0	+1
1000	0	0	0	0	0	+1	+1	+1	+1	+1	+1	1
1500	0	0	0	+1	+1	1	1	1	1	1	2	2
2000	0	0	+1	1	1	1	1	2	2	2	2	2
2500	0	+1	1	1	1	1	2	2	2	2	3	3
3000	0	1	1	1	2	2	2	2	3	3	3	4
3500	+1	1	1	2	2	2	3	3	3	4	4	5
4000	1	1	2	2	2	3	3	3	4	4	5	5
4500	1	1	2	2	3	3	4	4	4	5	5	6
5000	1	2	2	3	3	4	4	5	5	6	6	7
5500	1	2	3	3	4	4	5	5	6	6	7	8
6000	2	2	3	3	4	5	5	6	6	7	7	9
6500	2	3	3	4	5	5	6	6	7	8	8	9
7000	2	3	4	4	5	6	6	7	8	8	9	10
7500	3	3	4	5	6	6	7	8	8	9	10	11
8000	3	4	5	5	6	7	8	8	9	10	11	12
8500	3	4	5	6	7	8	8	9	10	11	12	13
9000	4	5	6	6	7	8	9	10	11	12	12	14
9500	4	5	6	7	8	9	10	11	12	13	13	15
10000	5	6	7	8	9	10	11	11	12	13	14	16
11000	6	7	8	9	10	11	12	13	14	15	16	18
12000	7	8	9	10	11	13	14	15	16	17	18	21
13000	8	9	11	12	13	14	16	17	18	19	21	23
14000	9	11	12	13	15	16	17	19	20	21	23	25
15000	11	12	14	15	17	18	19	21	22	24	25	28
16000	12	14	15	17	18	20	21	23	25	26	28	31
17000	14	15	17	19	20	22	24	25	27	28	30	
18000	16	17	19	21	22	24	26	28	30	31		
19000	17	19	21	23	25	26	28	30	32			
20000	19	21	23	25	27	29	31					

TABLE 56.

DETERMINATION OF HEIGHTS BY THE BAROMETER.

METRIC MEASURES.

Values of 18400 log $\frac{760}{B}$.

Barometric Pressure.	0	1	2	3	4	5	6	7	8	9
mm.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.
300	7428	7401	7375	7348	7322	7296	7270	7244	7218	7192
310	7166	7140	7115	7089	7064	7038	7013	6987	6962	6937
320	6912	6887	6862	6838	6813	6789	6764	6740	6715	6691
330	6666	6642	6618	6594	6570	6546	6522	6498	6475	6451
340	6428	6405	6381	6358	6334	6311	6288	6265	6242	6219
350	6196	6173	6151	6128	6106	6083	6061	6038	6016	5993
360	5971	5949	5927	5905	5883	5861	5839	5817	5795	5773
370	5752	5730	5709	5687	5666	5644	5623	5602	5581	5560
380	5539	5518	5497	5476	5455	5434	5414	5393	5373	5352
390	5332	5311	5291	5270	5250	5229	5209	5189	5169	5149
400	5129	5109	5089	5069	5049	5029	5010	4990	4971	4951
410	4932	4912	4893	4873	4854	4834	4815	4796	4777	4758
420	4739	4720	4701	4682	4663	4644	4625	4606	4588	4569
430	4551	4532	4514	4495	4477	4458	4440	4422	4404	4386
440	4368	4350	4332	4314	4296	4278	4260	4242	4224	4206
450	4188	4170	4152	4134	4117	4099	4082	4064	4047	4029
460	4012	3994	3977	3959	3942	3925	3908	3891	3874	3857
470	3840	3823	3806	3789	3772	3755	3738	3721	3705	3688
480	3672	3655	3639	3622	3606	3589	3573	3556	3540	3523
490	3507	3490	3474	3458	3442	3426	3410	3394	3378	3362
500	3346	3330	3314	3298	3282	3266	3250	3235	3219	3203
510	3188	3172	3157	3141	3126	3110	3095	3079	3064	3048
520	3033	3017	3002	2986	2971	2955	2940	2925	2910	2895
530	2880	2865	2850	2835	2820	2805	2790	2775	2760	2745
540	2731	2716	2701	2687	2672	2657	2643	2628	2613	2599
550	2584	2570	2555	2541	2526	2512	2497	2483	2468	2454
560	2440	2426	2411	2397	2383	2369	2355	2341	2327	2313
570	2299	2285	2271	2257	2243	2229	2215	2201	2188	2174
580	2160	2146	2133	2119	2105	2092	2078	2064	2051	2037
590	2023	2010	1996	1983	1969	1956	1942	1929	1915	1902
600	1889	1875	1862	1848	1835	1822	1809	1796	1783	1770
610	1757	1744	1731	1718	1705	1692	1679	1666	1653	1640
620	1627	1614	1601	1588	1576	1563	1550	1537	1525	1512
630	1499	1486	1474	1461	1448	1436	1423	1411	1398	1386
640	1373	1361	1348	1336	1323	1311	1298	1286	1273	1261
650	1249	1236	1224	1212	1199	1187	1175	1163	1151	1139
660	1127	1115	1103	1091	1079	1067	1055	1043	1031	1019
670	1007	995	983	971	960	948	936	924	913	901
680	889	877	866	854	842	831	819	807	796	784
690	772	761	749	738	726	715	703	692	680	669
700	657	646	635	623	612	601	589	578	567	555
710	544	533	521	510	499	487	476	465	454	443
720	432	421	410	399	388	377	366	355	344	333
730	322	311	300	289	278	267	256	245	234	224
740	213	202	192	181	170	160	149	138	128	117
750	+ 106	+ 95	+ 85	+ 74	+ 64	+ 53	+ 43	+ 32	+ 22	+ 11
760	0	− 10	− 21	− 31	− 42	− 52	− 63	− 73	− 83	− 94
770	− 104	− 115	− 125	− 136	− 146	− 156	− 166	− 177	− 187	− 197

DETERMINATION OF HEIGHTS BY THE BAROMETER.

DYNAMIC MEASURES.

Values of $18400 \log \frac{1013.3}{B}$

Barometric Pressure	0	1	2	3	4	5	6	7	8	9
mb.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.
0	∞	55306	49767	46527	44228	42445	40988	39756	38689	37748
10	36906	36144	35448	34809	34217	33666	33150	32665	32209	31777
20	31367	30977	30605	30250	29910	29584	29270	28969	28678	28397
30	28127	27865	27611	27365	27126	26895	26670	26451	26238	26031
40	25828	25630	25438	25250	25066	24887	24711	24539	24371	24206
50	24043	23886	23731	23579	23430	23283	23139	22998	22859	22722
60	22588	22456	22326	22198	22072	21948	21827	21706	21587	21471
70	21356	21242	21131	21021	20912	20805	20699	20594	20491	20389
80	20289	20189	20092	19995	19899	19804	19711	19618	19527	19437
90	19348	19259	19172	19086	19000	18916	18832	18749	18667	18586
100	18506	18426	18347	18269	18192	18116	18040	17965	17891	17817
110	17744	17672	17600	17529	17459	17389	17320	17251	17183	17115
120	17049	16982	16917	16851	16787	16722	16659	16596	16533	16471
130	16409	16348	16287	16227	16167	16108	16048	15990	15932	15874
140	15817	15760	15703	15647	15592	15536	15482	15427	15373	15319
150	15266	15212	15160	15107	15055	15004	14952	14901	14850	14800
160	14750	14700	14650	14601	14553	14504	14456	14408	14360	14312
170	14265	14218	14172	14125	14079	14034	13988	13943	13898	13853
180	13809	13764	13720	13677	13633	13590	13547	13504	13461	13419
190	13377	13335	13293	13251	13210	13169	13128	13087	13047	13007
200	12967	12927	12887	12848	12808	12769	12730	12692	12653	12615
210	12577	12539	12501	12463	12426	12389	12352	12315	12278	12242
220	12205	12169	12133	12097	12061	12026	11990	11955	11920	11885
230	11850	11815	11781	11746	11712	11678	11644	11610	11577	11543
240	11510	11476	11443	11410	11378	11345	11312	11280	11248	11216
250	11184	11152	11120	11088	11057	11025	10994	10963	10932	10901
260	10870	10839	10809	10778	10748	10718	10688	10658	10628	10598
270	10569	10539	10510	10480	10451	10422	10393	10364	10335	10307
280	10278	10249	10221	10193	10165	10137	10108	10081	10053	10025
290	9997	9970	9943	9915	9888	9861	9834	9807	9780	9753
300	9727	9700	9674	9647	9621	9594	9568	9542	9516	9490
310	9465	9439	9413	9388	9362	9337	9311	9286	9261	9236
320	9211	9186	9161	9136	9111	9087	9062	9038	9014	8989
330	8965	8941	8917	8893	8869	8845	8821	8797	8773	8750
340	8726	8703	8679	8656	8633	8610	8587	8564	8541	8518
350	8495	8472	8449	8427	8404	8381	8359	8336	8314	8292
360	8270	8247	8225	8203	8181	8159	8138	8116	8094	8073
370	8051	8029	8008	7986	7965	7943	7922	7901	7880	7859
380	7838	7817	7796	7775	7754	7733	7712	7692	7671	7651
390	7630	7610	7589	7569	7548	7528	7508	7488	7468	7448
400	7428	7408	7388	7368	7348	7328	7309	7289	7269	7250
410	7230	7211	7191	7172	7153	7133	7114	7095	7076	7057
420	7038	7019	7000	6981	6962	6943	6924	6906	6887	6868
430	6850	6831	6813	6794	6776	6757	6739	6721	6703	6684
440	6666	6648	6630	6612	6594	6576	6558	6540	6522	6504
450	6487	6469	6451	6433	6416	6398	6381	6363	6346	6328
460	6311	6294	6276	6259	6242	6225	6207	6190	6173	6156
470	6139	6122	6105	6088	6071	6055	6038	6021	6004	5987
480	5971	5954	5937	5921	5904	5888	5871	5855	5839	5822
490	5806	5790	5773	5757	5741	5725	5709	5693	5677	5661

DETERMINATION OF HEIGHTS BY THE BAROMETER.

DYNAMIC MEASURES.

Values of $18400 \log \frac{1013.3}{B}$

Barometric Pressure	0	1	2	3	4	5	6	7	8	9
mb.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.
500	5645	5629	5613	5597	5581	5565	5549	5533	5518	5502
510	5486	5471	5455	5439	5424	5408	5393	5377	5362	5346
520	5331	5316	5300	5285	5270	5255	5239	5224	5209	5194
530	5179	5164	5149	5134	5119	5104	5089	5074	5059	5044
540	5030	5015	5000	4985	4971	4956	4941	4927	4912	4898
550	4883	4868	4854	4839	4825	4811	4796	4782	4768	4753
560	4739	4725	4710	4696	4682	4668	4654	4640	4626	4612
570	4598	4583	4569	4556	4542	4528	4514	4500	4486	4472
580	4459	4445	4431	4417	4404	4390	4376	4363	4349	4335
590	4322	4308	4295	4281	4268	4254	4241	4228	4214	4201
600	4188	4174	4161	4148	4134	4121	4108	4095	4082	4069
610	4056	4042	4029	4016	4003	3990	3977	3964	3951	3939
620	3926	3913	3900	3887	3874	3861	3849	3836	3823	3810
630	3798	3785	3772	3760	3747	3735	3722	3709	3697	3684
640	3672	3659	3647	3635	3622	3610	3597	3585	3573	3560
650	3548	3536	3523	3511	3499	3487	3475	3462	3450	3438
660	3426	3414	3402	3390	3378	3366	3354	3342	3330	3318
670	3306	3294	3282	3270	3258	3246	3235	3223	3211	3199
680	3187	3176	3164	3152	3141	3129	3117	3106	3094	3082
690	3071	3059	3048	3036	3025	3013	3002	2990	2979	2967
700	2956	2944	2933	2922	2910	2899	2888	2876	2865	2854
710	2842	2831	2820	2809	2798	2786	2775	2764	2753	2742
720	2731	2720	2708	2697	2686	2675	2664	2653	2642	2631
730	2621	2609	2599	2588	2577	2566	2555	2544	2533	2523
740	2512	2501	2490	2479	2469	2458	2447	2437	2426	2415
750	2405	2394	2383	2373	2362	2351	2341	2330	2320	2309
760	2299	2288	2278	2267	2257	2246	2236	2225	2215	2205
770	2194	2184	2173	2163	2153	2142	2132	2122	2112	2101
780	2091	2081	2071	2060	2050	2040	2030	2020	2009	1999
790	1989	1979	1969	1959	1949	1939	1929	1919	1909	1899
800	1889	1879	1869	1859	1849	1839	1829	1819	1809	1799
810	1789	1780	1770	1760	1750	1740	1731	1721	1711	1701
820	1692	1682	1672	1662	1653	1643	1633	1623	1614	1604
830	1595	1585	1575	1566	1556	1547	1537	1527	1518	1508
840	1499	1489	1480	1470	1461	1451	1442	1433	1423	1414
850	1404	1395	1386	1376	1367	1357	1348	1339	1329	1320
860	1311	1302	1292	1283	1274	1264	1255	1246	1237	1228
870	1218	1209	1200	1191	1182	1173	1164	1154	1145	1136
880	1127	1118	1109	1100	1091	1082	1073	1064	1055	1046
890	1037	1028	1019	1010	1001	992	983	974	965	956
900	948	939	930	921	912	903	894	886	877	868
910	859	850	842	833	824	815	807	798	789	781
920	772	763	755	746	737	729	720	711	703	694
930	686	677	668	660	651	643	634	626	617	608
940	600	592	583	575	566	558	549	541	532	524
950	516	507	499	490	482	474	465	457	448	440
960	432	424	415	407	399	390	382	374	365	357
970	349	341	332	324	316	308	300	292	283	275
980	267	259	251	243	234	226	218	210	202	194
990	186	178	170	162	154	146	138	130	122	114
1000	106	98	90	82	74	66	58	50	42	34
1010	26	18	10	2	− 6	− 13	− 21	− 29	− 37	− 45
1020	− 53	− 61	− 68	− 76	− 84	− 92	−100	−107	−115	−123
1030	−131	−138	−146	−154	−162	−169	−177	−185	−192	−200
1040	−208	−215	−223	−231	−238	−246	−254	−261	−269	−277

DETERMINATION OF HEIGHTS BY THE BAROMETER.

METRIC MEASURES.

Temperature correction factor, $a = .00367\,\theta$.

Multiply approximate altitudes, determined from table 56 or 57, by values of a corresponding to mean temperature, θ, of air column. Add, if θ is above 0° C; subtract, if below 0° C.

Mean Temp. θ	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
°C.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.
0	0.000	0.000	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.003
1	.004	.004	.004	.005	.005	.006	.006	.006	.007	.007
2	.007	.008	.008	.008	.009	.009	.010	.010	.010	.011
3	.011	.011	.012	.012	.012	.013	.013	.014	.014	.014
4	.015	.015	.015	.016	.016	.017	.017	.017	.018	.018
5	.018	.019	.019	.019	.020	.020	.021	.021	.021	.022
6	.022	.022	.023	.023	.023	.024	.024	.025	.025	.025
7	.026	.026	.026	.027	.027	.028	.028	.028	.029	.029
8	.029	.030	.030	.030	.031	.031	.032	.032	.032	.033
9	.033	.033	.034	.034	.034	.035	.035	.036	.036	.036
10	.037	.037	.037	.038	.038	.039	.039	.039	.040	.040
11	.040	.041	.041	.041	.042	.042	.043	.043	.043	.044
12	.044	.044	.045	.045	.046	.046	.046	.047	.047	.047
13	.048	.048	.048	.049	.049	.050	.050	.050	.051	.051
14	.051	.052	.052	.052	.053	.053	.054	.054	.054	.055
15	.055	.055	.056	.056	.057	.057	.057	.058	.058	.058
16	.059	.059	.059	.060	.060	.061	.061	.061	.062	.062
17	.062	.063	.063	.063	.064	.064	.065	.065	.065	.066
18	.066	.066	.067	.067	.068	.068	.068	.069	.069	.069
19	.070	.070	.070	.071	.071	.072	.072	.072	.073	.073
20	.073	.074	.074	.075	.075	.075	.076	.076	.076	.077
21	.077	.077	.078	.078	.079	.079	.079	.080	.080	.080
22	.081	.081	.081	.082	.082	.083	.083	.083	.084	.084
23	.084	.085	.085	.086	.086	.086	.087	.087	.087	.088
24	.088	.088	.089	.089	.090	.090	.090	.091	.091	.091
25	.092	.092	.092	.093	.093	.094	.094	.094	.095	.095
26	.095	.096	.096	.097	.097	.097	.098	.098	.098	.099
27	.099	.099	.100	.100	.101	.101	.101	.102	.102	.102
28	.103	.103	.103	.104	.104	.105	.105	.105	.106	.106
29	.106	.107	.107	.108	.108	.108	.109	.109	.109	.110
30	.110	.110	.111	.111	.112	.112	.112	.113	.113	.113
31	.114	.114	.115	.115	.115	.116	.116	.116	.117	.117
32	.117	.118	.118	.119	.119	.119	.120	.120	.120	.121
33	.121	.121	.122	.122	.123	.123	.123	.124	.124	.124
34	.125	.125	.126	.126	.126	.127	.127	.127	.128	.128
35	.128	.129	.129	.130	.130	.130	.131	.131	.131	.132
36	.132	.132	.133	.133	.134	.134	.134	.135	.135	.135
37	.136	.136	.137	.137	.137	.138	.138	.138	.139	.139
38	.139	.140	.140	.141	.141	.141	.142	.142	.142	.143
39	.143	.143	.144	.144	.145	.145	.145	.146	.146	.146
40	.147	.147	.148	.148	.148	.149	.149	.149	.150	.150
41	.150	.151	.151	.152	.152	.152	.153	.153	.153	.154
42	.154	.155	.155	.155	.156	.156	.156	.157	.157	.157
43	.158	.158	.159	.159	.159	.160	.160	.160	.161	.161
44	.161	.162	.162	.163	.163	.163	.164	.164	.164	.165
45	.165	.166	.166	.166	.167	.167	.167	.168	.168	.168
46	.169	.169	.170	.170	.170	.171	.171	.171	.172	.172
47	.172	.173	.173	.174	.174	.174	.175	.175	.175	.176
48	.176	.177	.177	.177	.178	.178	.178	.179	.179	.179
49	.180	.180	.181	.181	.181	.182	.182	.182	.183	.183
50	.184	.184	.184	.185	.185	.185	.186	.186	.186	.187

DETERMINATION OF HEIGHTS BY THE BAROMETER.

METRIC MEASURES.

Term for Temperature: $0.00367\,\theta \times z$.

For temperatures {above 0° C. / below 0° C.} the values are to be {added. / subtracted.}

Approximate difference of height. Z.	MEAN TEMPERATURE OF AIR COLUMN IN CENTIGRADE DEGREES (θ).												
	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	20°	30°	40°
m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.
100	0	1	1	1	2	2	3	3	3	4	7	11	15
200	1	1	2	3	4	4	5	6	7	7	15	22	29
300	1	2	3	4	6	7	8	9	10	11	22	33	44
400	1	3	4	6	7	9	10	12	13	15	29	44	59
500	2	4	6	7	9	11	13	15	17	18	37	55	73
600	2	4	7	9	11	13	15	18	20	22	44	66	88
700	3	5	8	10	13	15	18	21	23	26	51	77	103
800	3	6	9	12	15	18	21	23	26	29	59	88	117
900	3	7	10	13	17	20	23	26	30	33	66	99	132
1000	4	7	11	15	18	22	26	29	33	37	73	110	147
1100	4	8	12	16	20	24	28	32	36	40	81	121	161
1200	4	9	13	18	22	26	31	35	40	44	88	132	176
1300	5	10	14	19	24	29	33	38	43	48	95	143	191
1400	5	10	15	21	26	31	36	41	46	51	103	154	206
1500	6	11	17	22	28	33	39	44	50	55	110	165	220
1600	6	12	18	23	29	35	41	47	53	59	117	176	235
1700	6	12	19	25	31	37	44	50	56	62	125	187	250
1800	7	13	20	26	33	40	46	53	59	66	132	198	264
1900	7	14	21	28	35	42	49	56	63	70	139	209	279
2000	7	15	22	29	37	44	51	59	66	73	147	220	294
2100	8	15	23	31	39	46	54	62	69	77	154	231	308
2200	8	16	24	32	40	48	57	65	73	81	161	242	323
2300	8	17	25	34	42	51	59	68	76	84	169	253	338
2400	9	18	26	35	44	53	62	70	79	88	176	264	352
2500	9	18	28	37	46	55	64	73	83	92	184	275	367
2600	10	19	29	38	48	57	67	76	86	95	191	286	382
2700	10	20	30	40	50	59	69	79	89	99	198	297	396
2800	10	21	31	41	51	62	72	82	92	103	206	308	411
2900	11	21	32	43	53	64	75	85	96	106	213	319	426
3000	11	22	33	44	55	66	77	88	99	110	220	330	440
3100	11	23	34	46	57	68	80	91	102	114	228	341	455
3200	12	23	35	47	59	70	82	94	106	117	235	352	470
3300	12	24	36	48	61	73	85	97	109	121	242	363	484
3400	12	25	37	50	62	75	87	100	112	125	250	374	499
3500	13	26	39	51	64	77	90	103	116	128	257	385	514
3600	13	26	40	53	66	79	92	106	119	132	264	396	528
3700	14	27	41	54	68	81	95	109	122	136	272	407	543
3800	14	28	42	56	70	84	98	112	126	139	279	418	558
3900	14	29	43	57	72	86	100	115	129	143	286	429	573
4000	15	29	44	59	73	88	103	117	132	147	294	440	587
5000	18	37	55	73	92	110	128	147	165	183	367	551	734
6000	22	44	66	88	110	132	154	176	198	220	440	661	881
7000	26	51	77	103	128	154	180	206	231	257	514	771	1028

DETERMINATION OF HEIGHTS BY THE BAROMETER.

METRIC MEASURES.

Correction for Humidity: Values of 10000 β.

$$\beta = 0.378\,\frac{e}{b} = 0.378\,\frac{e_1 + e_0}{B + B_0}.$$

Mean Vapor Pressure.	Mean barometric pressure in millimeters $\left(\frac{B+B_0}{2}\right)$.													
$e=\frac{e_1+e_0}{2}$	500	520	540	560	580	600	620	640	660	680	700	720	740	760
mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
1	8	7	7	7	7	6	6	6	6	6	5	5	5	5
2	15	15	14	14	13	13	12	12	11	11	11	11	10	10
3	23	22	21	20	20	19	18	18	17	17	16	16	15	15
4	30	29	28	27	26	25	24	24	23	22	22	21	20	20
5	38	36	35	34	33	31	30	30	29	28	27	26	26	25
6	45	44	42	41	39	38	37	35	34	33	32	32	31	30
7	53	51	49	47	46	44	43	41	40	39	38	37	36	35
8	60	58	56	54	52	50	49	47	46	44	43	42	41	40
9	68	65	63	61	59	57	55	53	52	50	49	47	46	45
10	76	73	70	68	65	63	61	59	57	56	54	53	51	50
11	83	80	77	74	72	69	67	65	63	61	59	58	56	55
12	91	87	84	81	78	76	73	71	69	67	65	63	61	60
13	98	95	91	88	85	82	79	77	74	72	70	68	66	65
14	106	102	98	95	91	88	85	83	80	78	76	74	72	70
15	113	109	105	101	98	95	91	89	86	83	81	79	77	75
16	121	116	112	108	104	101	98	94	92	89	86	84	82	80
17	129	124	119	115	111	107	104	100	97	94	92	89	87	85
18	136	131	126	122	117	113	110	106	103	100	97	95	92	90
19	144	138	133	128	124	120	116	112	109	106	103	100	97	95
20	151	145	140	135	130	126	122	118	115	111	108	105	102	99
21	159	153	147	142	137	132	128	124	120	117	113	110	107	104
22	166	160	154	149	143	139	134	130	126	122	119	116	112	109
23	174	167	161	155	150	145	140	136	132	128	124	121	117	114
24	181	174	168	162	156	151	146	142	137	133	130	126	123	119
25	189	182	175	169	163	157	152	148	143	139	135	131	128	124
26	197	189	182	175	169	164	159	154	149	145	140	137	133	129
27	204	196	189	182	176	170	165	159	155	150	146	142	138	134
28	212	204	196	189	182	176	171	165	160	156	151	147	143	139
29	219	211	203	196	189	183	177	171	166	161	157	152	148	144
30	227	218	210	203	196	189	183	177	172	167	162	158	153	149
31	234	225	217	209	202	195	189	183	178	172	167	163	158	154
32	242	233	224	216	209	202	195	189	183	178	173	168	163	159
33	249	240	231	223	215	208	201	195	189	183	178	173	169	164
34	257	247	238	230	222	214	207	201	195	189	184	179	174	169
35	265	254	245	236	228	220	213	207	200	195	189	184	179	174
36	272	262	252	243	235	227	219	213	206	200	194	189	184	179
37	280	269	259	250	241	233	226	219	212	206	200	194	189	184
38	287	276	266	257	248	239	232	224	218	211	205	200	194	189
39	295	283	273	263	254	246	238	230	223	217	211	205	199	194
40	302	291	280	270	261	252	244	236	229	222	216	210	204	199

TABLE 60.

DETERMINATION OF HEIGHTS BY THE BAROMETER.

METRIC MEASURES.

Correction for Humidity: $10000\,\beta \times z$.

Top argument: Values of $10000\,\beta$ obtained from page

Side argument: Approximate difference of height (z).

Approximate Difference of Height. Z.	$10000\,\beta$.											
	25	50	75	100	125	150	175	200	225	250	275	300
m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.
100	0.3	0.5	0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5	2.8	3.0
200	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
300	0.8	1.5	2.3	3.0	3.8	4.5	5.3	6.0	6.8	7.5	8.3	9.0
400	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0
500	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0
600	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0
700	1.8	3.5	5.3	7.0	8.8	10.5	12.3	14.0	15.8	17.5	19.3	21.0
800	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0
900	2.3	4.5	6.8	9.0	11.3	13.5	15.8	18.0	20.3	22.5	24.8	27.0
1000	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5	30.0
1100	2.8	5.5	8.3	11.0	13.8	16.5	19.3	22.0	24.8	27.5	30.3	33.0
1200	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0	33.0	36.0
1300	3.3	6.5	9.8	13.0	16.3	19.5	22.8	26.0	29.3	32.5	35.8	39.0
1400	3.5	7.0	10.5	14.0	17.5	21.0	24.5	28.0	31.5	35.0	38.5	42.0
1500	3.8	7.5	11.3	15.0	18.8	22.5	26.3	30.0	33.8	37.5	41.3	45.0
1600	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0	44.0	48.0
1700	4.3	8.5	12.8	17.0	21.3	25.5	29.8	34.0	38.3	42.5	46.8	51.0
1800	4.5	9.0	13.5	18.0	22.5	27.0	31.5	36.0	40.5	45.0	49.5	54.0
1900	4.8	9.5	14.3	19.0	23.8	28.5	33.3	38.0	42.8	47.5	52.3	57.0
2000	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0	60.0
2100	5.3	10.5	15.8	21.0	26.3	31.5	36.8	42.0	47.3	52.5	57.8	63.0
2200	5.5	11.0	16.5	22.0	27.5	33.0	38.5	44.0	49.5	55.0	60.5	66.0
2300	5.8	11.5	17.3	23.0	28.8	34.5	40.3	46.0	51.8	57.5	63.3	69.0
2400	6.0	12.0	18.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0	66.0	72.0
2500	6.3	12.5	18.8	25.0	31.3	37.5	43.8	50.0	56.3	62.5	68.8	75.0
2600	6.5	13.0	19.5	26.0	32.5	39.0	45.5	52.0	58.5	65.0	71.5	78.0
2700	6.8	13.5	20.3	27.0	33.8	40.5	47.3	54.0	60.8	67.5	74.3	81.0
2800	7.0	14.0	21.0	28.0	35.0	42.0	49.0	56.0	63.0	70.0	77.0	84.0
2900	7.3	14.5	21.8	29.0	36.3	43.5	50.8	58.0	65.3	72.5	79.8	87.0
3000	7.5	15.0	22.5	30.0	37.5	45.0	52.5	60.0	67.5	75.0	82.5	90.0
3100	7.8	15.5	23.3	31.0	38.8	46.5	54.3	62.0	69.8	77.5	85.3	93.0
3200	8.0	16.0	24.0	32.0	40.0	48.0	56.0	64.0	72.0	80.0	88.0	96.0
3300	8.3	16.5	24.8	33.0	41.3	49.5	57.8	66.0	74.3	82.5	90.8	99.0
3400	8.5	17.0	25.5	34.0	42.5	51.0	59.5	68.0	76.5	85.0	93.5	102.0
3500	8.8	17.5	26.3	35.0	43.8	52.5	61.3	70.0	78.8	87.5	96.3	105.0
3600	9.0	18.0	27.0	36.0	45.0	54.0	63.0	72.0	81.0	90.0	99.0	108.0
3700	9.3	18.5	27.8	37.0	46.3	55.5	64.8	74.0	83.3	92.5	101.8	111.0
3800	9.5	19.0	28.5	38.0	47.5	57.0	66.5	76.0	85.5	95.0	104.5	114.0
3900	9.8	19.5	29.3	39.0	48.8	58.5	68.3	78.0	87.8	97.5	107.3	117.0
4000	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0
5000	12.5	25.0	37.5	50.0	62.5	75.0	87.5	100.0	112.5	125.0	137.5	150.0
6000	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0	150.0	165.0	180.0
7000	17.5	35.0	52.5	70.0	87.5	105.0	122.5	140.0	157.5	175.0	192.5	210.0

DETERMINATION OF HEIGHTS BY THE BAROMETER.

METRIC MEASURES.

Correction for Humidity: Values of $\frac{1}{2}\left(\frac{0.378\frac{e}{b}}{0.00367}\right)$

Top argument: Values of e.
Side argument: Values of b. Auxiliary to Table 58.

Air Pressure.	VAPOR PRESSURE mm.												
	0.5	1	2	3	4	5	6	7	8	9	10	20	30
mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
780	0.0	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.7	1.3	2.0
760	.0	.1	.1	.2	.3	.3	.4	.5	.5	.6	.7	1.4	2.0
740	.0	.1	.1	.2	.3	.4	.4	.5	.6	.6	.7	1.4	2.1
720	.0	.1	.1	.2	.3	.4	.4	.5	.6	.6	.7	1.4	2.1
700	.0	.1	.2	.2	.3	.4	.4	.5	.6	.7	.7	1.5	2.2
680	.0	.1	.2	.2	.3	.4	.4	.5	.6	.7	.8	1.5	
660	.0	.1	.2	.2	.3	.4	.5	.5	.6	.7	.8	1.6	
640	.0	.1	.2	.2	.3	.4	.5	.6	.6	.7	.8	1.6	
620	.0	.1	.2	.2	.3	.4	.5	.6	.7	.8	.8	1.7	
600	.0	.1	.2	.3	.3	.4	.5	.6	.7	.8	.9	1.7	
580	.0	.1	.2	.3	.4	.4	.5	.6	.7	.8	.9		
560	.0	.1	.2	.3	.4	.5	.6	.6	.7	.8	.9		
540	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0		
520	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9			
500	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9			
480	.1	.1	.2	.3	.4	.5	.6	.8					
460	.1	.1	.2	.3	.4	.6	.7	.8					
440	.1	.1	.2	.4	.5	.6	.7						
420	.1	.1	.2	.4	.5	.6	.7						
400	.1	.1	.3	.4	.5	.6							
380	.1	.1	.3	.4	.5								
360	.1	.1	.3	.4	.6								
340	.1	.2	.3	.4									
320	.1	.2	.3	.5									
300	.1	.2	.3										
280	.1	.2	.4										
260	.1	.2	.4										
240	.1	.2	.4										
220	.1	.2											
200	.1	.3											
180	.1	.3											
160	.2	.3											
140	.2	.4											
120	.2	.4											
100	.3	.5											
80	.3												
60	.4												
40	.6												
20	1.3												
10	2.6												

DETERMINATION OF HEIGHTS BY THE BAROMETER.

DYNAMIC MEASURES.

Correction for Humidity: Values of $\frac{1}{2}\left(\frac{0.378\frac{e}{b}}{0.00367}\right)$

Top argument: Values of e.
Side argument: Values of b. Auxiliary to Table 58.

Air Pressure.	VAPOR PRESSURE mb.													
	0.5	1	2	3	4	5	6	7	8	9	10	20	30	40
mb.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1080	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	1.0	1.4	1.9
1060	.0	.0	.1	.1	.2	.2	.3	.3	.4	.4	.5	1.0	1.5	1.9
1040	.0	.0	.1	.1	.2	.2	.3	.3	.4	.4	.5	1.0	1.5	2.0
1020	.0	.1	.1	.2	.2	.3	.3	.4	.4	.5	.5	1.0	1.5	2.0
1000	.0	.1	.1	.2	.2	.3	.3	.4	.4	.5	.5	1.0	1.5	2.1
980	.0	.1	.1	.2	.2	.3	.3	.4	.4	.5	.5	1.1	1.6	2.1
960	.0	.1	.1	.2	.2	.3	.3	.4	.4	.5	.5	1.1	1.6	2.1
940	.0	.1	.1	.2	.2	.3	.3	.4	.4	.5	.5	1.1	1.6	2.2
920	.0	.1	.1	.2	.2	.3	.3	.4	.4	.5	.6	1.1	1.7	2.2
900	.0	.1	.1	.2	.2	.3	.3	.4	.5	.5	.6	1.1	1.7	2.3
880	.0	.1	.1	.2	.2	.3	.4	.4	.5	.5	.6	1.2	1.8	2.3
860	.0	.1	.1	.2	.2	.3	.4	.4	.5	.5	.6	1.2	1.8	2.4
840	.0	.1	.1	.2	.2	.3	.4	.4	.5	.6	.6	1.2	1.8	
820	.0	.1	.1	.2	.3	.3	.4	.4	.5	.6	.6	1.3	1.9	
800	.0	.1	.1	.2	.3	.3	.4	.5	.5	.6	.6	1.3	1.9	
780	.0	.1	.1	.2	.3	.3	.4	.5	.5	.6	.7	1.3	2.0	
760	.0	.1	.1	.2	.3	.3	.4	.5	.5	.6	.7	1.4		
740	.0	.1	.1	.2	.3	.3	.4	.5	.6	.6	.7	1.4		
720	.0	.1	.1	.2	.3	.4	.4	.5	.6	.6	.7	1.4		
700	.0	.1	.1	.2	.3	.4	.4	.5	.6	.7	.7	1.5		
680	.0	.1	.2	.2	.3	.4	.5	.5	.6	.7	.8			
660	.0	.1	.2	.2	.3	.4	.5	.5	.6	.7	.8			
640	.0	.1	.2	.2	.3	.4	.5	.6	.6	.7	.8			
620	.0	.1	.2	.2	.3	.4	.5	.6	.7	.7				
600	.0	.1	.2	.3	.3	.4	.5	.6	.7	.8				
580	.0	.1	.2	.3	.4	.4	.5	.6	.7	.8				
560	.0	.1	.2	.3	.4	.5	.6	.6	.7					
540	.0	.1	.2	.3	.4	.5	.6	.7	.8					
520	.0	.1	.2	.3	.4	.5	.6	.7	.8					
500	.1	.1	.2	.3	.4	.5	.6	.7						
480	.1	.1	.2	.3	.4	.5	.6	.8						
460	.1	.1	.2	.3	.4	.6	.7	.8						
440	.1	.1	.2	.4	.5	.6	.7							
420	.1	.1	.2	.4	.5	.6	.7							
400	.1	.1	.3	.4	.5	.6	.8							
380	.1	.1	.3	.4	.5	.7								
360	.1	.1	.3	.4	.6	.7								
340	.1	.2	.3	.5	.6	.8								
320	.1	.2	.3	.5	.6									
300	.1	.2	.3	.5	.7									
280	.1	.2	.4	.6	.7									
260	.1	.2	.4	.6										
240	.1	.2	.4	.6										
220	.1	.2	.5	.7										
200	.1	.3	.5											

Air Pressure.	VAPOR PRESSURE mb.		
	0.5	1	2
mb.	°C.	°C.	°C.
180	.1	.3	.6
160	.2	.3	.6
140	.2	.4	
120	.2	.4	
100	.3	.5	
80	.3		
60	.4		
40	.6		
20	1.3		
10	2.6		

DETERMINATION OF HEIGHTS BY THE BAROMETER.

METRIC MEASURES.

Correction for Gravity and Weight of Mercury : $z\,(0.002640 \cos 2\phi - 0.000007 \cos^2 2\phi + 0.00244)$.

Approximate difference of Height. Z.	LATITUDE (ϕ)															
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°
Meters.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.
100	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
300	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0
400	2	2	2	2	2	2	2	1	1	1	1	1	0	0	0	0
500	3	3	2	2	2	2	2	2	1	1	1	1	1	0	0	0
600	3	3	3	3	3	2	2	2	2	1	1	1	1	0	0	0
700	4	4	3	3	3	3	3	2	2	2	1	1	1	1	0	0
800	4	4	4	4	4	3	3	3	2	2	2	1	1	1	0	0
900	5	5	4	4	4	4	3	3	3	2	2	1	1	1	0	0
1000	5	5	5	5	4	4	4	3	3	2	2	2	1	1	0	0
1100	6	6	5	5	5	5	4	4	3	3	2	2	1	1	0	0
1200	6	6	6	6	5	5	5	4	3	3	2	2	1	1	0	0
1300	7	7	6	6	6	5	5	4	4	3	3	2	1	1	1	0
1400	7	7	7	7	6	6	5	5	4	3	3	2	2	1	1	0
1500	8	8	7	7	7	6	6	5	4	4	3	2	2	1	1	0
1600	8	8	8	8	7	7	6	5	5	4	3	2	2	1	1	0
1700	9	9	8	8	8	7	6	6	5	4	3	3	2	1	1	0
1800	9	9	9	8	8	7	7	6	5	4	4	3	2	1	1	0
1900	10	10	9	9	8	8	7	6	5	5	4	3	2	1	1	0
2000	10	10	10	9	9	8	8	7	6	5	4	3	2	1	1	0
2100	11	11	10	10	9	9	8	7	6	5	4	3	2	2	1	0
2200	11	11	11	10	10	9	8	7	6	5	4	3	2	2	1	0
2300	12	12	11	11	10	9	9	8	7	6	5	4	3	2	1	0
2400	12	12	12	11	11	10	9	8	7	6	5	4	3	2	1	0
2500	13	13	12	12	11	10	9	8	7	6	5	4	3	2	1	0
2600	13	13	13	12	12	11	10	9	8	6	5	4	3	2	1	0
2700	14	14	13	13	12	11	10	9	8	7	5	4	3	2	1	0
2800	14	14	14	13	12	12	11	9	8	7	6	4	3	2	1	0
2900	15	15	14	14	13	12	11	10	8	7	6	4	3	2	1	0
3000	15	15	15	14	13	12	11	10	9	7	6	5	3	2	1	0
3100	16	16	15	15	14	13	12	10	9	8	6	5	3	2	1	0
3200	16	16	16	15	14	13	12	11	9	8	6	5	4	2	1	0
3300	17	17	16	16	15	14	12	11	10	8	7	5	4	2	1	0
3400	17	17	17	16	15	14	13	11	10	8	7	5	4	2	1	0
3500	18	18	17	17	16	14	13	12	10	9	7	5	4	3	1	1
3600	18	18	18	17	16	15	14	12	10	9	7	5	4	3	1	1
3700	19	19	18	17	16	15	14	12	11	9	7	6	4	3	2	1
3800	19	19	19	18	17	16	14	13	11	9	8	6	4	3	2	1
3900	20	20	19	18	17	16	15	13	11	9	8	6	4	3	2	1
4000	20	20	20	19	18	17	15	13	12	10	8	6	4	3	2	1
4500	23	23	22	21	20	19	17	15	13	11	9	7	5	3	2	1
5000	25	25	25	24	22	21	19	17	14	12	10	8	6	4	2	1
5500	28	28	27	26	24	23	21	18	16	13	11	8	6	4	2	1
6000	30	30	29	28	27	25	23	20	17	15	12	9	7	4	2	1
6500	33	33	32	31	29	27	24	22	19	16	13	10	7	5	3	1
7000	35	35	34	33	31	29	26	23	20	17	14	11	8	5	3	1

DETERMINATION OF HEIGHTS BY THE BAROMETER.

METRIC MEASURES.

Correction for the variation of gravity with altitude: $\dfrac{z(z+2h_0)}{R}$

Approximate difference of height. Z.	HEIGHT OF LOWER STATION IN METERS (h_0).													
	0	200	400	600	800	1000	1200	1400	1600	1800	2000	2500	3000	4000
meters.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.
200	0	0	0	0	0	0	0	0	0	0	0	0	0	0
300	0	0	0	0	0	0	0	0	0	0	0	0	0	0
400	0	0	0	0	0	0	0	0	0	0	0	0	0	1
500	0	0	0	0	0	0	0	0	0	0	0	0	1	1
600	0	0	0	0	0	0	0	0	0	0	0	1	1	1
700	0	0	0	0	0	0	0	0	0	0	1	1	1	1
800	0	0	0	0	0	0	0	0	1	1	1	1	1	1
900	0	0	0	0	0	0	0	1	1	1	1	1	1	1
1000	0	0	0	0	0	0	1	1	1	1	1	1	1	1
1100	0	0	0	0	0	1	1	1	1	1	1	1	1	2
1200	0	0	0	0	1	1	1	1	1	1	1	1	1	2
1300	0	0	0	1	1	1	1	1	1	1	1	1	1	2
1400	0	0	0	1	1	1	1	1	1	1	1	1	2	2
1500	0	0	1	1	1	1	1	1	1	1	1	2	2	2
1600	0	1	1	1	1	1	1	1	1	1	1	2	2	2
1700	0	1	1	1	1	1	1	1	1	1	2	2	2	3
1800	1	1	1	1	1	1	1	1	1	2	2	2	2	3
1900	1	1	1	1	1	1	1	1	2	2	2	2	2	3
2000	1	1	1	1	1	1	1	2	2	2	2	2	3	3
2100	1	1	1	1	1	1	1	2	2	2	2	2	3	3
2200	1	1	1	1	1	1	2	2	2	2	2	2	3	4
2300	1	1	1	1	1	2	2	2	2	2	2	3	3	4
2400	1	1	1	1	2	2	2	2	2	2	2	3	3	4
2500	1	1	1	1	2	2	2	2	2	2	3	3	3	4
2600	1	1	1	2	2	2	2	2	2	3	3	3	4	4
2700	1	1	1	2	2	2	2	2	3	3	3	3	4	5
2800	1	1	2	2	2	2	2	2	3	3	3	3	4	5
2900	1	2	2	2	2	2	2	3	3	3	3	4	4	5
3000	1	2	2	2	2	2	3	3	3	3	3	4	4	5
3100	2	2	2	2	2	2	3	3	3	3	3	4	4	5
3200	2	2	2	2	2	3	3	3	3	3	4	4	5	6
3300	2	2	2	2	3	3	3	3	3	4	4	4	5	6
3400	2	2	2	2	3	3	3	3	4	4	4	4	5	6
3500	2	2	2	3	3	3	3	3	4	4	4	5	5	6
3600	2	2	2	3	3	3	3	4	4	4	4	5	5	7
3700	2	2	3	3	3	3	4	4	4	4	4	5	6	7
3800	2	3	3	3	3	3	4	4	4	4	5	5	6	7
3900	2	3	3	3	3	4	4	4	4	5	5	5	6	7
4000	3	3	3	3	4	4	4	4	5	5	5	6	6	8
4500	3	3	4	4	4	5	5	5	5	6	6	7	7	9
5000	4	4	5	5	5	5	6	6	6	7	7	8	9	10
5500	5	5	5	6	6	6	7	7	8	8	8	9	10	12
6000	6	6	6	7	7	8	8	8	9	9	9	10	11	13
6500	7	7	7	8	8	9	9	9	10	10	11	12	13	15
7000	8	8	9	9	9	10	10	11	11	12	12	13	14	16

DIFFERENCE OF HEIGHT CORRESPONDING TO A CHANGE OF 0.1 INCH IN THE BAROMETER.

ENGLISH MEASURES.

Barometric Pressure.	MEAN TEMPERATURE OF THE AIR IN FAHRENHEIT DEGREES.											
	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°
Inches	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
22.0	119.2	120.5	121.8	123.1	124.4	125.8	127.1	128.5	129.8	131.2	132.5	133.9
.2	118.2	119.4	120.7	122.0	123.3	124.7	126.0	127.3	128.7	130.0	131.3	132.7
.4	117.1	118.3	119.6	120.9	122.2	123.6	124.9	126.2	127.5	128.8	130.2	131.5
.6	116.1	117.3	118.6	119.8	121.1	122.5	123.8	125.1	126.4	127.7	129.0	130.3
.8	115.0	116.3	117.5	118.8	120.1	121.4	122.7	124.0	125.3	126.6	127.9	129.2
23.0	114.0	115.3	116.5	117.8	119.0	120.3	121.6	122.9	124.2	125.5	126.8	128.1
.2	113.1	114.3	115.5	116.8	118.0	119.3	120.6	121.8	123.1	124.4	125.7	127.0
.4	112.1	113.3	114.5	115.8	117.0	118.3	119.5	120.8	122.1	123.3	124.6	125.9
.6	111.1	112.3	113.5	114.8	116.0	117.3	118.5	119.8	121.0	122.3	123.5	124.8
.8	110.2	111.4	112.6	113.8	115.1	116.3	117.5	118.8	120.0	121.3	122.5	123.8
24.0	109.3	110.5	111.7	112.9	114.1	115.3	116.5	117.8	119.0	120.2	121.5	122.7
.2	108.4	109.5	110.7	111.9	113.1	114.4	115.6	116.8	118.0	119.2	120.5	121.7
.4	107.5	108.6	109.8	111.0	112.2	113.4	114.6	115.9	117.1	118.3	119.5	120.7
.6	106.6	107.8	108.9	110.1	111.3	112.5	113.7	114.9	116.1	117.3	118.5	119.7
.8	105.8	106.9	108.1	109.2	110.4	111.6	112.8	114.0	115.2	116.4	117.6	118.8
25.0	104.9	106.0	107.2	108.3	109.5	110.7	111.9	113.1	114.2	115.4	116.6	117.8
.2	104.1	105.2	106.3	107.5	108.7	109.8	111.0	112.2	113.3	114.5	115.7	116.9
.4	103.3	104.4	105.5	106.6	107.8	109.0	110.1	111.3	112.4	113.6	114.8	116.0
.6	102.5	103.6	104.7	105.8	107.0	108.1	109.3	110.4	111.6	112.7	113.9	115.1
.8	101.7	102.8	103.9	105.0	106.1	107.3	108.4	109.6	110.7	111.9	113.0	114.2
26.0	100.9	102.0	103.1	104.2	105.3	106.4	107.6	108.7	109.9	111.0	112.1	113.3
.2	100.1	101.2	102.3	103.4	104.5	105.6	106.8	107.9	109.0	110.1	111.3	112.4
.4	99.4	100.4	101.5	102.6	103.7	104.8	106.0	107.1	108.2	109.3	110.4	111.6
.6	98.6	99.7	100.7	101.8	102.9	104.0	105.2	106.3	107.4	108.5	109.6	110.7
.8	97.9	98.9	100.0	101.1	102.2	103.3	104.4	105.5	106.6	107.7	108.8	109.9
27.0	97.1	98.2	99.2	100.3	101.4	102.5	103.6	104.7	105.8	106.9	108.0	109.1
.2	96.4	97.5	98.5	99.6	100.7	101.8	102.8	103.9	105.0	106.1	107.2	108.3
.4	95.7	96.8	97.8	98.9	99.9	101.0	102.1	103.2	104.2	105.3	106.4	107.5
.6	95.0	96.1	97.1	98.1	99.2	100.3	101.3	102.4	103.5	104.6	105.6	106.7
.8	94.3	95.4	96.4	97.4	98.5	99.6	100.6	101.7	102.7	103.8	104.9	105.9
28.0	93.7	94.7	95.7	96.7	97.8	98.8	99.9	101.0	102.0	103.1	104.1	105.2
.2	93.0	94.0	95.0	96.1	97.1	98.1	99.2	100.2	101.3	102.3	103.4	104.4
.4	92.4	93.4	94.4	95.4	96.4	97.5	98.5	99.5	100.6	101.6	102.7	103.7
.6	91.7	92.7	93.7	94.7	95.7	96.8	97.8	98.8	99.9	100.9	101.9	103.0
.8	91.1	92.1	93.1	94.1	95.1	96.1	97.1	98.2	99.2	100.2	101.2	102.3
29.0	90.4	91.4	92.4	93.4	94.4	95.4	96.5	97.5	98.5	99.5	100.5	101.6
.2	89.8	90.8	91.8	92.8	93.8	94.8	95.8	96.8	97.8	98.8	99.9	100.9
.4	89.2	90.2	91.1	92.1	93.1	94.1	95.1	96.1	97.1	98.2	99.2	100.2
.6	88.6	89.6	90.5	91.5	92.5	93.5	94.5	95.5	96.5	97.5	98.5	99.5
.8	88.0	89.0	89.9	90.9	91.9	92.9	93.9	94.9	95.8	96.8	97.8	98.8
30.0	87.4	88.4	89.3	90.3	91.3	92.3	93.2	94.2	95.2	96.2	97.2	98.2
.2	86.8	87.8	88.7	89.7	90.7	91.7	92.6	93.6	94.6	95.6	96.5	97.5
.4	86.3	87.2	88.2	89.1	90.1	91.1	92.0	93.0	94.0	94.9	95.9	96.9
.6	85.7	86.7	87.6	88.5	89.5	90.5	91.4	92.4	93.3	94.3	95.3	96.2
.8	85.2	86.1	87.0	88.0	88.9	89.9	90.8	91.8	92.7	93.7	94.7	95.6

TABLE 65.

DIFFERENCE OF HEIGHT CORRESPONDING TO A CHANGE OF 1 MILLIMETER IN THE BAROMETER.

METRIC MEASURES.

Barometric Pressure.	MEAN TEMPERATURE OF THE AIR IN CENTIGRADE DEGREES.									
	– 2°	0°	2°	4°	6°	8°	10°	12°	14°	16°
mm.	Meters.	Meters.	Meters.	Meters.	Meters.	Meters.	Meters.	Meters.	Meters.	Meters.
760	10.48	10.57	10.65	10.73	10.81	10.89	10.98	11.06	11.15	11.23
750	10.62	10.71	10.79	10.87	10.95	11.04	11.13	11.21	11.30	11.38
740	10.77	10.85	10.93	11.02	11.10	11.19	11.28	11.36	11.45	11.54
730	10.91	11.00	11.08	11.17	11.26	11.35	11.43	11.52	11.61	11.70
720	11.06	11.15	11.24	11.32	11.42	11.51	11.59	11.68	11.77	11.86
710	11.22	11.31	11.40	11.48	11.58	11.67	11.75	11.85	11.94	12.03
700	11.38	11.47	11.56	11.65	11.74	11.83	11.92	12.02	12.11	12.20
690	11.55	11.63	11.72	11.82	11.91	12.00	12.09	12.19	12.28	12.38
680	11.72	11.80	11.89	11.99	12.08	12.18	12.27	12.37	12.46	12.56
670	11.89	11.98	12.07	12.17	12.26	12.36	12.46	12.55	12.65	12.75
660	12.07	12.16	12.26	12.35	12.45	12.55	12.65	12.74	12.84	12.94
650	12.26	12.35	12.45	12.54	12.64	12.74	12.84	12.94	13.04	13.14
640	12.45	12.55	12.64	12.74	12.84	12.94	13.04	13.14	13.24	13.35
630	12.65	12.75	12.84	12.94	13.04	13.15	13.25	13.35	13.45	13.56
620	12.85	12.96	13.05	13.15	13.25	13.36	13.46	13.57	13.67	13.78
610	13.06	13.17	13.27	13.37	13.47	13.58	13.68	13.79	13.89	14.01
600	13.28	13.39	13.49	13.59	13.70	13.80	13.91	14.02	14.13	14.24
590	13.51	13.62	13.72	13.82	13.93	14.03	14.15	14.26	14.37	14.48
580	13.74	13.85	13.96	14.06	14.17	14.28	14.39	14.51	14.62	14.73
570	13.98	14.09	14.20	14.31	14.42	14.53	14.64	14.76	14.88	14.99
560	14.23	14.34	14.45	14.57	14.68	14.79	14.90	15.02	15.14	15.25

Barometric Pressure.	MEAN TEMPERATURE OF THE AIR IN CENTIGRADE DEGREES.									
	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°
mm.	Meters.	Meters.	Meters.	Meters.	Meters.	Meters.	Meters.	Meters.	Meters.	Meters.
760	11.32	11.41	11.49	11.58	11.66	11.75	11.84	11.92	12.01	12.10
750	11.47	11.56	11.64	11.73	11.82	11.91	12.00	12.08	12.17	12.26
740	11.63	11.72	11.80	11.89	11.98	12.07	12.16	12.24	12.33	12.42
730	11.79	11.88	11.96	12.05	12.15	12.23	12.32	12.41	12.50	12.59
720	11.95	12.04	12.13	12.22	12.32	12.40	12.49	12.58	12.68	12.77
710	12.12	12.21	12.30	12.39	12.49	12.58	12.67	12.76	12.86	12.95
700	12.29	12.39	12.48	12.57	12.67	12.76	12.85	12.94	13.04	13.13
690	12.47	12.57	12.66	12.75	12.85	12.94	13.04	13.13	13.23	13.32
680	12.66	12.75	12.85	12.94	13.04	13.13	13.23	13.32	13.42	13.52
670	12.85	12.94	13.04	13.14	13.23	13.33	13.43	13.52	13.62	13.72
660	13.04	13.14	13.24	13.34	13.43	13.53	13.63	13.73	13.83	13.93
650	13.24	13.34	13.44	13.54	13.64	13.74	13.84	13.94	14.04	14.15
640	13.45	13.55	13.65	13.75	13.85	13.96	14.06	14.15	14.26	14.37
630	13.66	13.76	13.87	13.97	14.07	14.18	14.28	14.38	14.49	14.60
620	13.88	13.98	14.09	14.20	14.30	14.41	14.51	14.62	14.72	14.83
610	14.11	14.21	14.32	14.43	14.54	14.64	14.75	14.86	14.96	15.07
600	14.35	14.45	14.56	14.67	14.78	14.89	15.00	15.11	15.21	15.32
590	14.59	14.70	14.81	14.92	15.03	15.14	15.25	15.36	15.47	15.59
580	14.84	14.95	15.07	15.17	15.29	15.40	15.52	15.63	15.74	15.86
570	15.10	15.21	15.33	15.44	15.56	15.67	15.79	15.91	16.02	16.14
560	15.37	15.48	15.60	15.72	15.84	15.95	16.07	16.19	16.30	16.42

DETERMINATION OF HEIGHTS BY THE BAROMETER.

Formula of Babinet.

$$Z = C\frac{B_0 - B}{B_0 + B}$$

$$C \text{ (in feet)} = 52494 \left[1 + \frac{t_0 + t - 64}{900}\right] \text{—English Measures.}$$

$$C \text{ (in metres)} = 16000 \left[1 + \frac{2(t_0 + t)}{1000}\right] \text{—Metric Measures.}$$

In which Z = Difference of height of two stations in feet or metres.

B_0, B = Barometric readings at the lower and upper stations respectively, corrected for all sources of instrumental error.

t_0, t = Air temperatures at the lower and upper stations respectively.

Values of C.

ENGLISH MEASURES.

½ $(t_0 + t)$.	log C.	C.
F.		Feet.
10°	4.69834	49928
15	.70339	50511
20	.70837	51094
25	.71330	51677
30	.71818	52261
35	4.72300	52844
40	.72777	53428
45	.73248	54011
50	.73715	54595
55	.74177	55178
60	4.74633	55761
65	.75085	56344
70	.75532	56927
75	.75975	57511
80	.76413	58094
85	4.76847	58677
90	.77276	59260
95	.77702	59844
100	.78123	60427

METRIC MEASURES.

½ $(t_0 + t)$.	log C.	C.
C.		Metres.
−10°	4.18639	15360
−8	.19000	15488
−6	.19357	15616
−4	.19712	15744
−2	.20063	15872
0	4.20412	16000
+2	.20758	16128
4	.21101	16256
6	.21442	16384
8	.21780	16512
10	4.22115	16640
12	.22448	16768
14	.22778	16896
16	.23106	17024
18	.23431	17152
20	4.23754	17280
22	.24075	17408
24	.24393	17536
26	.24709	17664
28	.25022	17792
30	4.25334	17920
32	.25643	18048
34	.25950	18176
36	.26255	18304

Table 67.

BAROMETRIC PRESSURES CORRESPONDING TO THE TEMPERATURE OF THE BOILING POINT OF WATER.

ENGLISH MEASURES.

Temperature.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
185°	17.075	17.112	17.150	17.187	17.224	17.262	17.300	17.337	17.375	17.413
186	17.450	17.488	17.526	17.564	17.602	17.641	17.679	17.717	17.756	17.794
187	17.832	17.871	17.910	17.948	17.987	18.026	18.065	18.104	18.143	18.182
188	18.221	18.261	18.300	18.340	18.379	18.419	18.458	18.498	18.538	18.578
189	18.618	18.658	18.698	18.738	18.778	18.818	18.859	18.899	18.940	18.980
190	19.021	19.062	19.102	19.143	19.184	19.225	19.266	19.308	19.349	19.390
191	19.431	19.473	19.514	19.556	19.598	19.639	19.681	19.723	19.765	19.807
192	19.849	19.892	19.934	19.976	20.019	20.061	20.104	20.146	20.189	20.232
193	20.275	20.318	20.361	20.404	20.447	20.490	20.533	20.577	20.620	20.664
194	20.707	20.751	20.795	20.839	20.883	20.927	20.971	21.015	21.059	21.103
195	21.148	21.192	21.237	21.282	21.326	21.371	21.416	21.461	21.506	21.551
196	21.597	21.642	21.687	21.733	21.778	21.824	21.870	21.915	21.961	22.007
197	22.053	22.099	22.145	22.192	22.238	22.284	22.331	22.377	22.424	22.471
198	22.517	22.564	22.611	22.658	22.706	22.753	22.800	22.847	22.895	22.942
199	22.990	23.038	23.085	23.133	23.181	23.229	23.277	23.325	23.374	23.422
200	23.470	23.519	23.568	23.616	23.665	23.714	23.763	23.812	23.861	23.910
201	23.959	24.009	24.058	24.108	24.157	24.207	24.257	24.307	24.357	24.407
202	24.457	24.507	24.557	24.608	24.658	24.709	24.759	24.810	24.861	24.912
203	24.963	25.014	25.065	25.116	25.168	25.219	25.271	25.322	25.374	25.426
204	25.478	25.530	25.582	25.634	25.686	25.738	25.791	25.843	25.896	25.948
205	26.001	26.054	26.107	26.160	26.213	26.266	26.319	26.373	26.426	26.480
206	26.534	26.587	26.641	26.695	26.749	26.803	26.857	26.912	26.966	27.021
207	27.075	27.130	27.184	27.239	27.294	27.349	27.404	27.460	27.515	27.570
208	27.626	27.681	27.737	27.793	27.848	27.904	27.960	28.016	28.073	28.129
209	28.185	28.242	28.298	28.355	28.412	28.469	28.526	28.583	28.640	28.697
210	28.754	28.812	28.869	28.927	28.985	29.042	29.100	29.158	29.216	29.275
211	29.333	29.391	29.450	29.508	29.567	29.626	29.685	29.744	29.803	29.862
212	29.921	29.981	30.040	30.100	30.159	30.219	30.279	30.339	30.399	30.459
213	30.519	30.580	30.640	30.701	30.761	30.822	30.883	30.944	31.005	31.066
214	31.127	31.199	31.250	31.311	31.373	31.435	31.497	31.559	31.621	31.683

Table 68.

METRIC MEASURES.

Temperature.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
80°	355.40	356.84	358.28	359.73	361.19	362.65	364.11	365.58	367.06	368.54
81	370.03	371.52	373.01	374.51	376.02	377.53	379.05	380.57	382.09	383.62
82	385.16	386.70	388.25	389.80	391.36	392.92	394.49	396.06	397.64	399.22
83	400.81	402.40	404.00	405.61	407.22	408.83	410.45	412.08	413.71	415.35
84	416.99	418.64	420.29	421.95	423.61	425.28	426.95	428.64	430.32	432.01
85	433.71	435.41	437.12	438.83	440.55	442.28	444.01	445.75	447.49	449.24
86	450.99	452.75	454.51	456.28	458.06	459.84	461.63	463.42	465.22	467.03
87	468.84	470.66	472.48	474.31	476.14	477.99	479.83	481.68	483.54	485.41
88	487.28	489.16	491.04	492.93	494.82	496.72	498.63	500.54	502.46	504.39
89	506.32	508.26	510.20	512.15	514.11	516.07	518.04	520.01	521.99	523.98
90	525.97	527.97	529.98	531.99	534.01	536.04	538.07	540.11	542.15	544.21
91	546.26	548.33	550.40	552.48	554.56	556.65	558.75	560.85	562.96	565.08
92	567.20	569.33	571.47	573.61	575.76	577.92	580.08	582.25	584.43	586.61
93	588.80	591.00	593.20	595.41	597.63	599.86	602.09	604.33	606.57	608.82
94	611.08	613.35	615.62	617.90	620.19	622.48	624.79	627.09	629.41	631.73
95	634.06	636.40	638.74	641.09	643.45	645.82	648.19	650.57	652.96	655.35
96	657.75	660.16	662.58	665.00	667.43	669.87	672.32	674.77	677.23	679.70
97	682.18	684.66	687.15	689.65	692.15	694.67	697.19	699.71	702.25	704.79
98	707.35	709.90	712.47	715.04	717.63	720.22	722.81	725.42	728.03	730.65
99	733.28	735.92	738.56	741.21	743.87	746.54	749.22	751.90	754.59	757.29
100	760.00	762.72	765.44	768.17	770.91	773.66	776.42	779.18	781.95	784.73

HYGROMETRICAL TABLES.

PRESSURE OF AQUEOUS VAPOR OVER ICE.

ENGLISH MEASURES.

Temperature.	Vapor Pressure.	Temperature.	Vapor Pressure.	Temperature.	Vapor Pressure.	Temperature.	Vapor Pressure.	Temperature.	Vapor Pressure.
F.	Inches.	F.	Inches.	F.	Inches.	F.	Inches.	F.	Inches.
−60°	0.00099	−45°	0.00275	−30°	0.00705	−15.0°	0.01690	−7.5°	0.02556
59	.00107	44	.00294	29	.00749	14.5	.01738	7.0	.02626
58	.00114	43	.00313	28	.00795	14.0	.01787	6.5	.02698
57	.00123	42	.00334	27	.00844	13.5	.01838	6.0	.02771
56	.00131	41	.00356	26	.00896	13.0	.01890	5.5	.02847
−55	.00141	−40	.00379	−25	.00951	−12.5	.01943	−5.0	.02924
54	.00151	39	.00404	24	.01008	12.0	.01998	4.5	.03003
53	.00161	38	.00431	23	.01069	11.5	.02054	4.0	.03084
52	.00173	37	.00458	22	.01133	11.0	.02111	3.5	.03168
51	.00185	36	.00488	21	.01201	10.5	.02170	3.0	.03253
−50	.00198	−35	.00519	−20	.01272	−10.0	.02230	−2.5	.03340
49	.00211	34	.00552	19	.01347	9.5	.02292	2.0	.03429
48	.00226	33	.00588	18	.01426	9.0	.02356	1.5	.03520
47	.00241	32	.00625	17	.01510	8.5	.02421	1.0	.03614
46	.00258	31	.00664	16	.01598	8.0	.02487	0.5	.03710

Temperat.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
0°	0.03809	0.03829	0.03849	0.03869	0.03890	0.03910	0.03930	0.03951	0.03971	0.03992
1	.04013	.04034	.04055	.04076	.04097	.04118	.04140	.04161	.04183	.04204
2	.04226	.04248	.04270	.04292	.04314	.04337	.04359	.04382	.04404	.04427
3	.04450	.04473	.04496	.04519	.04543	.04566	.04590	.04613	.04637	.04661
4	.04685	.04709	.04733	.04758	.04782	.04807	.04831	.04856	.04881	.04906
5	.04931	.04956	.04982	.05007	.05033	.05058	.05084	.05110	.05136	.05162
6	.05189	.05215	.05242	.05269	.05296	.05322	.05350	.05377	.05404	.05431
7	.05459	.05487	.05514	.05542	.05570	.05598	.05627	.05655	.05684	.05712
8	.05741	.05770	.05799	.05828	.05858	.05887	.05917	.05947	.05977	.06007
9	.06037	.06067	.06098	.06128	.06159	.06190	.06221	.06252	.06283	.06315
10	.06346	.06378	.06410	.06442	.06474	.06507	.06539	.06572	.06605	.06638
11	.06670	.06703	.06737	.06770	.06804	.06838	.06872	.06906	.06940	.06975
12	.07009	.07044	.07079	.07114	.07149	.07184	.07220	.07256	.07292	.07328
13	.07363	.07399	.07436	.07472	.07509	.07546	.07583	.07621	.07658	.07696
14	.07733	.07771	.07809	.07848	.07886	.07925	.07964	.08003	.08042	.08082
15	.08121	.08161	.08201	.08241	.08281	.08321	.08362	.08402	.08443	.08484
16	.08525	.08566	.08608	.08650	.08692	.08734	.08777	.08819	.08862	.08905
17	.08948	.08991	.09035	.09079	.09123	.09167	.09211	.09255	.09300	.09345
18	.09390	.09435	.09481	.09526	.09572	.09618	.09664	.09711	.09757	.09804
19	.09851	.09898	.09946	.09994	.10042	.10090	.10138	.10186	.10235	.10284
20	.10333	.10383	.10432	.10482	.10532	.10582	.10633	.10683	.10734	.10785
21	.10836	.10888	.10940	.10992	.11044	.11096	.11149	.11202	.11255	.11308
22	.11361	.11415	.11469	.11523	.11578	.11632	.11687	.11742	.11798	.11853
23	.11909	.11965	.12022	.12078	.12135	.12192	.12250	.12307	.12365	.12423
24	.12481	.12540	.12598	.12657	.12717	.12776	.12836	.12896	.12956	.13017
25	.13077	.13138	.13200	.13261	.13323	.13385	.13447	.13510	.13573	.13636
26	.13699	.13763	.13827	.13891	.13956	.14021	.14086	.14151	.14216	.14282
27	.14348	.14415	.14481	.14548	.14616	.14683	.14751	.14819	.14887	.14956
28	.15024	.15093	.15163	.15233	.15303	.15374	.15444	.15515	.15586	.15658
29	.15729	.15801	.15874	.15947	.16020	.16093	.16167	.16241	.16315	.16389
30	.16463	.16538	.16614	.16690	.16766	.16842	.16919	.16996	.17073	.17150
31	.17228	.17306	.17386	.17466	.17546	.17626	.17707	.17788	.17869	.17950
32	.18032									

PRESSURE OF AQUEOUS VAPOR OVER WATER.

ENGLISH MEASURES.

Temperature.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
32°	0.1803	0.1810	0.1818	0.1825	0.1833	0.1840	0.1847	0.1855	0.1862	0.1870
33	.1877	.1885	.1893	.1900	.1908	.1915	.1923	.1931	.1939	.1946
34	.1954	.1962	.1970	.1978	.1986	.1994	.2002	.2010	.2018	.2026
35	.2034	.2042	.2050	.2059	.2067	.2075	.2083	.2091	.2100	.2108
36	.2117	.2125	.2133	.2142	.2150	.2159	.2168	.2176	.2185	.2193
37	.2202	.2211	.2220	.2228	.2237	.2246	.2255	.2264	.2273	.2282
38	.2291	.2300	.2309	.2318	.2327	.2336	.2345	.2355	.2364	.2373
39	.2382	.2392	.2401	.2410	.2420	.2429	.2439	.2448	.2458	.2467
40	.2477	.2487	.2496	.2506	.2516	.2526	.2536	.2545	.2555	.2565
41	.2575	.2585	.2595	.2606	.2616	.2626	.2636	.2646	.2656	.2667
42	.2677	.2687	.2698	.2708	.2719	.2729	.2740	.2750	.2761	.2771
43	.2782	.2793	.2804	.2814	.2825	.2836	.2847	.2858	.2869	.2880
44	.2891	.2902	.2913	.2924	.2935	.2946	.2958	.2969	.2981	.2992
45	.3003	.3014	.3026	.3037	.3049	.3061	.3073	.3084	.3096	.3108
46	.3120	.3132	.3144	.3156	.3167	.3179	.3191	.3203	.3216	.3228
47	.3240	.3252	.3265	.3277	.3289	.3301	.3314	.3326	.3339	.3352
48	.3365	.3377	.3390	.3402	.3415	.3428	.3441	.3454	.3467	.3480
49	.3493	.3506	.3519	.3532	.3546	.3559	.3572	.3585	.3599	.3612
50	.3626	.3639	.3653	.3666	.3680	.3694	.3708	.3722	.3736	.3749
51	.3763	.3777	.3791	.3805	.3820	.3834	.3848	.3862	.3876	.3890
52	.3905	.3919	.3934	.3948	.3963	.3978	.3993	.4007	.4022	.4037
53	.4052	.4067	.4082	.4097	.4112	.4127	.4142	.4157	.4172	.4187
54	.4203	.4218	.4234	.4249	.4265	.4280	.4296	.4312	.4328	.4343
55	.4359	.4375	.4391	.4407	.4423	.4439	.4455	.4471	.4488	.4504
56	.4521	.4537	.4554	.4570	.4587	.4603	.4620	.4637	.4654	.4670
57	.4687	.4704	.4721	.4738	.4755	.4772	.4790	.4807	.4824	.4841
58	.4859	.4876	.4894	.4912	.4930	.4947	.4965	.4983	.5001	.5019
59	.5037	.5055	.5073	.5091	.5110	.5128	.5146	.5164	.5183	.5201
60	.5220	.5239	.5258	.5276	.5295	.5314	.5333	.5352	.5371	.5390
61	.5409	.5428	.5448	.5467	.5486	.5505	.5525	.5545	.5565	.5584
62	.5604	.5624	.5644	.5663	.5683	.5703	.5724	.5744	.5764	.5784
63	.5805	.5825	.5846	.5866	.5887	.5908	.5929	.5950	.5971	.5992
64	.6013	.6034	.6055	.6076	.6097	.6118	.6140	.6161	.6183	.6204
65	.6226	.6248	.6270	.6292	.6314	.6336	.6358	.6380	.6402	.6424
66	.6447	.6469	.6492	.6514	.6537	.6559	.6582	.6605	.6628	.6651
67	.6674	.6697	.6721	.6744	.6767	.6790	.6814	.6837	.6861	.6885
68	.6909	.6932	.6956	.6980	.7004	.7028	.7053	.7077	.7101	.7125
69	.7150	.7174	.7199	.7224	.7249	.7274	.7299	.7324	.7348	.7373
70	.7399	.7424	.7449	.7474	.7500	.7526	.7552	.7577	.7603	.7629
71	.7655	.7681	.7707	.7733	.7760	.7786	.7813	.7839	.7866	.7892
72	.7919	.7946	.7973	.8000	.8027	.8054	.8081	.8108	.8136	.8163
73	.8191	.8219	.8247	.8274	.8302	.8330	.8358	.8386	.8414	.8442
74	.8471	.8499	.8528	.8556	.8585	.8614	.8643	.8672	.8701	.8730
75	.8760	.8789	.8818	.8847	.8877	.8907	.8937	.8966	.8996	.9026
76	.9056	.9086	.9117	.9147	.9178	.9208	.9239	.9269	.9300	.9331
77	.9362	.9393	.9424	.9455	.9487	.9518	.9550	.9581	.9613	.9645
78	.9677	.9709	.9741	.9773	.9805	.9837	.9870	.9902	.9935	.9968
79	1.0001	1.0033	1.0066	1.0099	1.0133	1.0166	1.0199	1.0232	1.0266	1.0300
80	1.0334	1.0367	1.0401	1.0435	1.0470	1.0504	1.0538	1.0572	1.0607	1.0641

PRESSURE OF AQUEOUS VAPOR OVER WATER.

ENGLISH MEASURES.

Temperature.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
80°	1.0334	1.0367	1.0401	1.0435	1.0470	1.0504	1.0538	1.0572	1.0607	1.0641
81	1.0676	1.0711	1.0746	1.0781	1.0816	1.0851	1.0887	1.0922	1.0958	1.0993
82	1.1029	1.1065	1.1101	1.1137	1.1173	1.1209	1.1246	1.1282	1.1319	1.1355
83	1.1392	1.1429	1.1466	1.1503	1.1540	1.1577	1.1615	1.1652	1.1690	1.1727
84	1.1765	1.1803	1.1841	1.1879	1.1917	1.1955	1.1994	1.2032	1.2071	1.2110
85	1.2149	1.2188	1.2227	1.2266	1.2305	1.2344	1.2384	1.2423	1.2463	1.2503
86	1.2543	1.2583	1.2623	1.2663	1.2704	1.2744	1.2785	1.2826	1.2867	1.2908
87	1.2949	1.2990	1.3031	1.3072	1.3114	1.3155	1.3197	1.3239	1.3281	1.3323
88	1.3365	1.3407	1.3450	1.3492	1.3535	1.3578	1.3621	1.3664	1.3707	1.3750
89	1.3794	1.3837	1.3881	1.3925	1.3969	1.4013	1.4057	1.4101	1.4146	1.4190
90	1.4234	1.4279	1.4324	1.4369	1.4414	1.4459	1.4505	1.4550	1.4596	1.4642
91	1.4688	1.4734	1.4780	1.4826	1.4872	1.4918	1.4965	1.5012	1.5059	1.5106
92	1.5153	1.5200	1.5247	1.5294	1.5342	1.5390	1.5438	1.5486	1.5534	1.5582
93	1.5630	1.5678	1.5727	1.5776	1.5825	1.5874	1.5923	1.5972	1.6022	1.6071
94	1.6121	1.6171	1.6221	1.6271	1.6321	1.6371	1.6422	1.6472	1.6523	1.6574
95	1.6625	1.6676	1.6728	1.6779	1.6831	1.6882	1.6934	1.6986	1.7038	1.7090
96	1.7143	1.7195	1.7248	1.7301	1.7354	1.7407	1.7460	1.7513	1.7567	1.7620
97	1.7674	1.7728	1.7782	1.7836	1.7891	1.7945	1.8000	1.8055	1.8110	1.8165
98	1.8220	1.8275	1.8331	1.8386	1.8442	1.8498	1.8554	1.8610	1.8667	1.8723
99	1.8780	1.8837	1.8894	1.8951	1.9008	1.9065	1.9123	1.9181	1.9239	1.9297
100	1.9355	1.9413	1.9472	1.9530	1.9589	1.9648	1.9707	1.9766	1.9826	1.9885
101	1.9945	2.0005	2.0065	2.0125	2.0185	2.0245	2.0306	2.0367	2.0428	2.0489
102	2.0550	2.0611	2.0673	2.0735	2.0797	2.0859	2.0921	2.0983	2.1046	2.1108
103	2.1171	2.1234	2.1298	2.1361	2.1425	2.1488	2.1552	2.1616	2.1680	2.1744
104	2.1809	2.1874	2.1939	2.2004	2.2069	2.2134	2.2200	2.2265	2.2331	2.2397
105	2.2463	2.2529	2.2596	2.2663	2.2730	2.2797	2.2864	2.2931	2.2999	2.3067
106	2.3135	2.3203	2.3271	2.3339	2.3408	2.3477	2.3546	2.3615	2.3684	2.3753
107	2.3823	2.3893	2.3963	2.4033	2.4103	2.4173	2.4244	2.4315	2.4386	2.4457
108	2.4529	2.4600	2.4672	2.4744	2.4816	2.4888	2.4961	2.5033	2.5106	2.5179
109	2.5252	2.5325	2.5399	2.5473	2.5547	2.5621	2.5695	2.5770	2.5845	2.5919
110	2.5994	2.6069	2.6145	2.6220	2.6296	2.6372	2.6448	2.6524	2.6601	2.6678
111	2.6755	2.6832	2.6909	2.6986	2.7064	2.7142	2.7220	2.7298	2.7377	2.7456
112	2.7535	2.7614	2.7693	2.7772	2.7852	2.7932	2.8012	2.8092	2.8173	2.8253
113	2.8334	2.8415	2.8496	2.8577	2.8659	2.8741	2.8823	2.8905	2.8988	2.9070
114	2.9153	2.9236	2.9320	2.9403	2.9487	2.9571	2.9655	2.9739	2.9823	2.9908
115	2.9993	3.0078	3.0163	3.0248	3.0334	3.0420	3.0506	3.0592	3.0679	3.0766
116	3.0853	3.0940	3.1027	3.1115	3.1203	3.1291	3.1379	3.1467	3.1556	3.1645
117	3.1734	3.1823	3.1913	3.2003	3.2093	3.2183	3.2273	3.2364	3.2455	3.2546
118	3.2637	3.2728	3.2820	3.2912	3.3004	3.3096	3.3189	3.3282	3.3375	3.3468
119	3.3562	3.3655	3.3749	3.3843	3.3938	3.4032	3.4127	3.4222	3.4318	3.4413
120	3.4509	3.4605	3.4701	3.4797	3.4894	3.4991	3.5088	3.5185	3.5283	3.5381
121	3.5479	3.5577	3.5676	3.5774	3.5873	3.5972	3.6072	3.6172	3.6272	3.6372
122	3.6472	3.6573	3.6674	3.6775	3.6876	3.6977	3.7079	3.7181	3.7284	3.7386
123	3.7489	3.7592	3.7695	3.7799	3.7903	3.8007	3.8111	3.8215	3.8320	3.8425
124	3.8530	3.8636	3.8742	3.8848	3.8954	3.9060	3.9167	3.9274	3.9381	3.9488
125	3.9596	3.9704	3.9813	3.9921	4.0030	4.0139	4.0248	4.0357	4.0467	4.0577
126	4.0687	4.0797	4.0908	4.1019	4.1131	4.1242	4.1354	4.1466	4.1578	4.1690
127	4.1803	4.1916	4.2030	4.2143	4.2256	4.2370	4.2485	4.2599	4.2714	4.2829
128	4.2945	4.3061	4.3177	4.3293	4.3410	4.3527	4.3645	4.3762	4.3880	4.3998
129	4.4116	4.4235	4.4354	4.4473	4.4592	4.4711	4.4831	4.4951	4.5072	4.5192
130	4.5313	4.5434	4.5555	4.5677	4.5798	4.5921	4.6043	4.6166	4.6289	4.6412

PRESSURE OF AQUEOUS VAPOR OVER WATER.

ENGLISH MEASURES.

Temperature.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
130°	4.531	4.543	4.556	4.568	4.580	4.592	4.604	4.617	4.629	4.641
131	4.654	4.666	4.678	4.691	4.703	4.716	4.728	4.741	4.754	4.766
132	4.779	4.792	4.804	4.817	4.830	4.843	4.855	4.868	4.881	4.894
133	4.907	4.920	4.933	4.946	4.959	4.972	4.985	4.998	5.012	5.025
134	5.038	5.051	5.065	5.078	5.091	5.105	5.118	5.132	5.145	5.158
135	5.172	5.186	5.199	5.213	5.226	5.240	5.254	5.268	5.281	5.295
136	5.309	5.323	5.337	5.351	5.365	5.379	5.392	5.407	5.421	5.435
137	5.449	5.463	5.477	5.492	5.506	5.520	5.535	5.549	5.563	5.578
138	5.592	5.607	5.621	5.636	5.650	5.665	5.680	5.694	5.709	5.724
139	5.739	5.754	5.768	5.783	5.798	5.813	5.828	5.843	5.858	5.873
140	5.889	5.904	5.919	5.934	5.949	5.965	5.980	5.995	6.011	6.026
141	6.041	6.057	6.072	6.088	6.104	6.119	6.135	6.151	6.166	6.182
142	6.198	6.214	6.229	6.245	6.261	6.277	6.293	6.309	6.325	6.341
143	6.358	6.374	6.390	6.406	6.422	6.439	6.455	6.472	6.488	6.504
144	6.521	6.537	6.554	6.571	6.587	6.604	6.621	6.637	6.654	6.671
145	6.688	6.705	6.722	6.739	6.756	6.773	6.790	6.807	6.824	6.841
146	6.858	6.876	6.893	6.910	6.928	6.945	6.962	6.980	6.997	7.015
147	7.032	7.050	7.068	7.085	7.103	7.121	7.139	7.156	7.174	7.192
148	7.210	7.228	7.246	7.264	7.282	7.300	7.319	7.337	7.355	7.374
149	7.392	7.410	7.429	7.447	7.466	7.484	7.503	7.521	7.540	7.559
150	7.577	7.596	7.615	7.634	7.653	7.672	7.691	7.710	7.729	7.748
151	7.767	7.786	7.805	7.824	7.844	7.863	7.882	7.902	7.921	7.941
152	7.960	7.980	8.000	8.019	8.039	8.059	8.078	8.098	8.118	8.138
153	8.158	8.178	8.198	8.218	8.238	8.258	8.278	8.298	8.319	8.339
154	8.360	8.380	8.400	8.421	8.441	8.462	8.482	8.503	8.524	8.545
155	8.565	8.586	8.607	8.628	8.649	8.670	8.691	8.712	8.733	8.754
156	8.776	8.797	8.818	8.839	8.861	8.882	8.904	8.925	8.947	8.968
157	8.990	9.012	9.034	9.055	9.077	9.099	9.121	9.143	9.165	9.187
158	9.209	9.231	9.253	9.276	9.298	9.320	9.342	9.365	9.387	9.410
159	9.432	9.455	9.478	9.500	9.523	9.546	9.569	9.592	9.615	9.638
160	9.661	9.684	9.707	9.730	9.753	9.776	9.799	9.823	9.846	9.870
161	9.893	9.916	9.940	9.964	9.987	10.011	10.035	10.059	10.082	10.106
162	10.130	10.154	10.178	10.203	10.227	10.251	10.275	10.299	10.324	10.348
163	10.373	10.397	10.422	10.446	10.471	10.495	10.520	10.545	10.570	10.595
164	10.620	10.645	10.670	10.695	10.720	10.745	10.770	10.795	10.821	10.846
165	10.872	10.897	10.922	10.948	10.974	10.999	11.025	11.051	11.077	11.102
166	11.128	11.154	11.180	11.206	11.232	11.258	11.284	11.311	11.337	11.363
167	11.390	11.417	11.444	11.470	11.497	11.523	11.550	11.577	11.604	11.631
168	11.658	11.685	11.712	11.739	11.766	11.793	11.821	11.848	11.875	11.903
169	11.930	11.957	11.985	12.013	12.040	12.068	12.096	12.124	12.152	12.180
170	12.208	12.236	12.264	12.292	12.320	12.349	12.377	12.406	12.434	12.463
171	12.491	12.520	12.548	12.577	12.606	12.635	12.664	12.693	12.722	12.751
172	12.780	12.809	12.838	12.868	12.897	12.927	12.956	12.986	13.015	13.045
173	13.074	13.104	13.134	13.164	13.194	13.224	13.254	13.284	13.314	13.344
174	13.374	13.405	13.435	13.465	13.496	13.527	13.557	13.588	13.619	13.649
175	13.680	13.711	13.742	13.773	13.804	13.835	13.867	13.898	13.929	13.961
176	13.992	14.024	14.055	14.087	14.118	14.150	14.182	14.214	14.246	14.278
177	14.310	14.342	14.374	14.406	14.438	14.471	14.503	14.536	14.568	14.601
178	14.633	14.666	14.699	14.731	14.764	14.797	14.830	14.864	14.897	14.930
179	14.963	14.996	15.030	15.063	15.097	15.130	15.164	15.197	15.231	15.265
180	15.299	15.333	15.367	15.401	15.435	15.469	15.504	15.538	15.572	15.607

PRESSURE OF AQUEOUS VAPOR OVER WATER.

ENGLISH MEASURES.

Temperature.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
180°	15.299	15.333	15.367	15.401	15.435	15.469	15.504	15.538	15.572	15.607
181	15.641	15.676	15.710	15.745	15.780	15.815	15.850	15.885	15.920	15.955
182	15.990	16.025	16.060	16.096	16.131	16.167	16.202	16.238	16.274	16.309
183	16.345	16.381	16.417	16.453	16.489	16.525	16.561	16.598	16.634	16.670
184	16.707	16.743	16.780	16.817	16.853	16.890	16.927	16.964	17.001	17.038
185	17.075	17.112	17.150	17.187	17.224	17.262	17.300	17.337	17.375	17.413
186	17.450	17.488	17.526	17.564	17.602	17.641	17.679	17.717	17.756	17.794
187	17.832	17.871	17.910	17.948	17.987	18.026	18.065	18.104	18.143	18.182
188	18.221	18.261	18.300	18.340	18.379	18.419	18.458	18.498	18.538	18.578
189	18.618	18.658	18.698	18.738	18.778	18.818	18.859	18.899	18.940	18.980
190	19.021	19.062	19.102	19.143	19.184	19.225	19.266	19.308	19.349	19.390
191	19.431	19.473	19.514	19.556	19.598	19.639	19.681	19.723	19.765	19.807
192	19.849	19.892	19.934	19.976	20.019	20.061	20.104	20.146	20.189	20.232
193	20.275	20.318	20.361	20.404	20.447	20.490	20.533	20.577	20.620	20.664
194	20.707	20.751	20.795	20.839	20.883	20.927	20.971	21.015	21.059	21.103
195	21.148	21.192	21.237	21.282	21.326	21.371	21.416	21.461	21.506	21.551
196	21.597	21.642	21.687	21.733	21.778	21.824	21.870	21.915	21.961	22.007
197	22.053	22.099	22.145	22.192	22.238	22.284	22.331	22.377	22.424	22.471
198	22.517	22.564	22.611	22.658	22.706	22.753	22.800	22.847	22.895	22.942
199	22.990	23.038	23.085	23.133	23.181	23.229	23.277	23.325	23.374	23.422
200	23.470	23.519	23.568	23.616	23.665	23.714	23.763	23.812	23.861	23.910
201	23.959	24.009	24.058	24.108	24.157	24.207	24.257	24.307	24.357	24.407
202	24.457	24.507	24.557	24.608	24.658	24.709	24.759	24.810	24.861	24.912
203	24.963	25.014	25.065	25.116	25.168	25.219	25.271	25.322	25.374	25.426
204	25.478	25.530	25.582	25.634	25.686	25.738	25.791	25.843	25.896	25.948
205	26.001	26.054	26.107	26.160	26.213	26.266	26.319	26.373	26.426	26.480
206	26.534	26.587	26.641	26.695	26.749	26.803	26.857	26.912	26.966	27.021
207	27.075	27.130	27.184	27.239	27.294	27.349	27.404	27.460	27.515	27.570
208	27.626	27.681	27.737	27.793	27.848	27.904	27.960	28.016	28.073	28.129
209	28.185	28.242	28.298	28.355	28.412	28.469	28.526	28.583	28.640	28.697
210	28.754	28.812	28.869	28.927	28.985	29.042	29.100	29.158	29.216	29.275
211	29.333	29.391	29.450	29.508	29.567	29.626	29.685	29.744	29.803	29.862
212	29.921	29.981	30.040	30.100	30.159	30.219	30.279	30.339	30.399	30.459
213	30.519	30.580	30.640	30.701	30.761	30.822	30.883	30.944	31.005	31.066
214	31.127	31.189	31.250	31.311	31.373	31.435	31.497	31.559	31.621	31.683

PRESSURE OF AQUEOUS VAPOR OVER ICE.

METRIC MEASURES.

Temperature.	Vapor Pressure.	Temperature.	Vapor Pressure.	Temperature.	Vapor Pressure.	Temperature.	Vapor Pressure.	Temperature.	Vapor Pressure.
C.	mm.	C.	mm.	C.	mm.	C.	mm.	C.	mm.
−70°	0.0018	−60°	0.0078	−50.0°	0.0291	−45.0°	0.0537	−40.0°	0.0964
69	0.0021	59	0.0089	49.5	0.0308	44.5	0.0570	39.5	0.1020
68	0.0025	58	0.0102	49.0	0.0329	44.0	0.0605	39.0	0.1080
67	0.0028	57	0.0117	48.5	0.0350	43.5	0.0642	38.5	0.1143
66	0.0033	56	0.0134	48.0	0.0373	43.0	0.0680	38.0	0.1209
−65	0.0038	−55	0.0153	−47.5	0.0396	−42.5	0.0721	−37.5	0.1279
64	0.0044	54	0.0174	47.0	0.0421	42.0	0.0765	37.0	0.1352
63	0.0051	53	0.0198	46.5	0.0448	41.5	0.0811	36.5	0.1430
62	0.0059	52	0.0226	46.0	0.0476	41.0	0.0859	36.0	0.1511
61	0.0068	51	0.0256	45.5	0.0506	40.5	0.0910	35.5	0.1596

Temperature.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
−35°	0.1686	0.1668	0.1650	0.1632	0.1614	0.1596	0.1579	0.1562	0.1545	0.1528
34	0.1880	0.1860	0.1840	0.1820	0.1800	0.1781	0.1761	0.1742	0.1723	0.1705
33	0.2094	0.2072	0.2050	0.2028	0.2006	0.1984	0.1963	0.1942	0.1921	0.1901
32	0.2331	0.2306	0.2281	0.2257	0.2233	0.2209	0.2186	0.2163	0.2140	0.2117
31	0.2591	0.2564	0.2537	0.2510	0.2484	0.2458	0.2432	0.2406	0.2381	0.2355
−30	0.2878	0.2848	0.2818	0.2789	0.2760	0.2731	0.2703	0.2674	0.2646	0.2619
29	0.3194	0.3161	0.3128	0.3096	0.3064	0.3032	0.3001	0.2970	0.2939	0.2908
28	0.3541	0.3505	0.3469	0.3433	0.3398	0.3363	0.3329	0.3295	0.3261	0.3227
27	0.3923	0.3883	0.3843	0.3804	0.3766	0.3727	0.3689	0.3652	0.3615	0.3578
26	0.4341	0.4297	0.4254	0.4211	0.4169	0.4127	0.4085	0.4044	0.4003	0.3963
−25	0.4800	0.4752	0.4705	0.4658	0.4611	0.4565	0.4519	0.4474	0.4429	0.4385
24	0.5303	0.5251	0.5199	0.5147	0.5096	0.5046	0.4996	0.4946	0.4897	0.4848
23	0.5854	0.5796	0.5739	0.5683	0.5628	0.5572	0.5517	0.5463	0.5409	0.5356
22	0.6456	0.6393	0.6331	0.6270	0.6209	0.6148	0.6088	0.6029	0.5970	0.5912
21	0.7115	0.7046	0.6978	0.6911	0.6844	0.6778	0.6713	0.6648	0.6583	0.6519
−20	0.7834	0.7759	0.7685	0.7611	0.7538	0.7466	0.7395	0.7324	0.7254	0.7184
19	0.8618	0.8537	0.8456	0.8376	0.8296	0.8217	0.8139	0.8062	0.7985	0.7909
18	0.9474	0.9385	0.9297	0.9209	0.9123	0.9037	0.8952	0.8867	0.8784	0.8701
17	1.0406	1.0309	1.0213	1.0118	1.0024	0.9930	0.9837	0.9745	0.9654	0.9563
16	1.1421	1.1316	1.1211	1.1108	1.1005	1.0903	1.0802	1.0702	1.0602	1.0504
−15	1.2525	1.2411	1.2297	1.2184	1.2072	1.1962	1.1852	1.1743	1.1635	1.1527
14	1.3726	1.3601	1.3477	1.3355	1.3233	1.3113	1.2993	1.2875	1.2757	1.2641
13	1.5029	1.4894	1.4759	1.4626	1.4495	1.4364	1.4234	1.4105	1.3978	1.3851
12	1.6444	1.6297	1.6151	1.6007	1.5864	1.5722	1.5581	1.5441	1.5302	1.5165
11	1.7979	1.7820	1.7662	1.7506	1.7350	1.7196	1.7043	1.6892	1.6741	1.6592
−10	1.9643	1.9470	1.9299	1.9129	1.8961	1.8794	1.8628	1.8464	1.8301	1.8139
9	2.1445	2.1258	2.1073	2.0889	2.0707	2.0526	2.0347	2.0168	1.9992	1.9817
8	2.3395	2.3193	2.2993	2.2794	2.2596	2.2401	2.2206	2.2014	2.1823	2.1633
7	2.5505	2.5287	2.5070	2.4855	2.4642	2.4430	2.4220	2.4011	2.3804	2.3599
6	2.7785	2.7549	2.7315	2.7083	2.6852	2.6623	2.6396	2.6171	2.5947	2.5725
−5	3.0248	2.9993	2.9740	2.9489	2.9240	2.8993	2.8747	2.8504	2.8262	2.8023
4	3.2907	3.2632	3.2359	3.2088	3.1819	3.1552	3.1287	3.1025	3.0764	3.0505
3	3.5775	3.5479	3.5184	3.4892	3.4602	3.4314	3.4028	3.3745	3.3463	3.3184
2	3.8868	3.8548	3.8230	3.7916	3.7603	3.7292	3.6985	3.6678	3.6375	3.6074
1	4.2199	4.1854	4.1513	4.1174	4.0837	4.0502	4.0171	3.9841	3.9515	3.9190
−0	4.5802	4.5428	4.5057	4.4690	4.4325	4.3962	4.3604	4.3248	4.2896	4.2546

PRESSURE OF AQUEOUS VAPOR OVER WATER.

METRIC MEASURES.

Temperature.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0°	4.580	4.614	4.647	4.681	4.715	4.750	4.784	4.819	4.854	4.889
1	4.924	4.960	4.996	5.032	5.068	5.105	5.142	5.179	5.216	5.254
2	5.291	5.329	5.368	5.406	5.445	5.484	5.523	5.562	5.602	5.642
3	5.682	5.723	5.763	5.804	5.846	5.887	5.929	5.971	6.013	6.056
4	6.098	6.141	6.185	6.228	6.272	6.316	6.361	6.406	6.450	6.496
5	6.541	6.587	6.633	6.680	6.726	6.773	6.820	6.868	6.916	6.964
6	7.012	7.061	7.110	7.159	7.209	7.259	7.309	7.360	7.410	7.462
7	7.513	7.565	7.617	7.669	7.722	7.775	7.828	7.882	7.936	7.991
8	8.045	8.100	8.156	8.211	8.267	8.324	8.380	8.437	8.494	8.552
9	8.610	8.669	8.727	8.786	8.846	8.906	8.966	9.026	9.087	9.148
10	9.210	9.272	9.334	9.397	9.460	9.523	9.587	9.651	9.716	9.781
11	9.846	9.912	9.978	10.044	10.111	10.178	10.246	10.314	10.382	10.451
12	10.521	10.590	10.660	10.731	10.801	10.873	10.944	11.016	11.089	11.162
13	11.235	11.309	11.383	11.458	11.533	11.608	11.684	11.761	11.837	11.915
14	11.992	12.070	12.149	12.228	12.307	12.387	12.468	12.549	12.630	12.712
15	12.794	12.877	12.960	13.043	13.127	13.212	13.297	13.383	13.469	13.555
16	13.642	13.729	13.817	13.906	13.995	14.084	14.174	14.265	14.356	14.447
17	14.539	14.632	14.725	14.818	14.912	15.007	15.102	15.197	15.293	15.390
18	15.487	15.585	15.683	15.782	15.882	15.981	16.082	16.183	16.285	16.387
19	16.489	16.593	16.696	16.801	16.906	17.011	17.117	17.224	17.331	17.439
20	17.548	17.657	17.766	17.877	17.987	18.099	18.211	18.323	18.437	18.551
21	18.665	18.780	18.896	19.012	19.129	19.247	19.365	19.484	19.603	19.723
22	19.844	19.965	20.087	20.210	20.333	20.457	20.582	20.707	20.833	20.960
23	21.087	21.215	21.344	21.473	21.604	21.734	21.866	21.998	22.131	22.264
24	22.398	22.533	22.669	22.805	22.942	23.080	23.219	23.358	23.498	23.638
25	23.780	23.922	24.065	24.209	24.353	24.498	24.644	24.791	24.938	25.086
26	25.235	25.385	25.535	25.687	25.839	25.991	26.145	26.299	26.455	26.610
27	26.767	26.925	27.083	27.242	27.402	27.563	27.725	27.887	28.051	28.215
28	28.380	28.546	28.712	28.880	29.048	29.217	29.387	29.558	29.730	29.903
29	30.076	30.251	30.426	30.602	30.779	30.957	31.136	31.315	31.496	31.678
30	31.860	32.043	32.228	32.413	32.599	32.786	32.974	33.163	33.353	33.543
31	33.735	33.928	34.121	34.316	34.512	34.708	34.906	35.104	35.303	35.504
32	35.705	35.908	36.111	36.315	36.521	36.727	36.935	37.143	37.353	37.563
33	37.775	37.987	38.201	38.415	38.631	38.848	39.065	39.284	39.504	39.725
34	39.947	40.170	40.394	40.619	40.846	41.073	41.302	41.531	41.762	41.994
35	42.227	42.461	42.696	42.932	43.170	43.408	43.648	43.889	44.131	44.374
36	44.619	44.864	45.111	45.358	45.608	45.858	46.109	46.362	46.615	46.870
37	47.127	47.384	47.643	47.902	48.163	48.426	48.689	48.954	49.220	49.487
38	49.756	50.025	50.296	50.569	50.842	51.117	51.393	51.670	51.949	52.229
39	52.510	52.793	53.077	53.362	53.649	53.937	54.226	54.516	54.808	55.101
40	55.396	55.692	55.989	56.288	56.588	56.889	57.192	57.496	57.802	58.109
41	58.417	58.727	59.038	59.351	59.665	59.981	60.298	60.616	60.936	61.257
42	61.580	61.904	62.230	62.557	62.886	63.216	63.547	63.880	64.215	64.551
43	64.889	65.228	65.569	65.911	66.255	66.600	66.947	67.295	67.645	67.997
44	68.350	68.704	69.061	69.419	69.778	70.139	70.502	70.866	71.232	71.599
45	71.968	72.339	72.712	73.086	73.461	73.839	74.218	74.598	74.981	75.365
46	75.751	76.138	76.527	76.918	77.311	77.705	78.101	78.499	78.898	79.300
47	79.703	80.107	80.514	80.922	81.332	81.744	82.158	82.573	82.990	83.409
48	83.830	84.253	84.677	85.104	85.532	85.962	86.394	86.828	87.263	87.701
49	88.140	88.581	89.024	89.470	89.916	90.365	90.816	91.269	91.723	92.180
50	92.639	93.099	93.562	94.026	94.492	94.961	95.431	95.903	96.378	96.854

PRESSURE OF AQUEOUS VAPOR OVER WATER.

METRIC MEASURES.

Temperature.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
50°	92.64	93.10	93.56	94.03	94.49	94.96	95.43	95.90	96.38	96.85
51	97.33	97.81	98.30	98.78	99.27	99.76	100.25	100.74	101.23	101.73
52	102.23	102.73	103.23	103.74	104.25	104.75	105.27	105.78	106.30	106.81
53	107.33	107.86	108.38	108.91	109.44	109.97	110.50	111.04	111.57	112.11
54	112.66	113.20	113.75	114.30	114.85	115.40	115.96	116.51	117.07	117.64
55	118.20	118.77	119.34	119.91	120.49	121.06	121.64	122.22	122.81	123.39
56	123.98	124.57	125.16	125.76	126.36	126.96	127.56	128.17	128.77	129.38
57	130.00	130.61	131.23	131.85	132.47	133.10	133.73	134.36	134.99	135.62
58	136.26	136.90	137.54	138.19	138.84	139.49	140.14	140.80	141.46	142.12
59	142.78	143.45	144.12	144.79	145.46	146.14	146.82	147.50	148.19	148.88
60	149.57	150.26	150.95	151.65	152.35	153.06	153.77	154.48	155.19	155.90
61	156.62	157.34	158.07	158.79	159.52	160.26	160.99	161.73	162.47	163.21
62	163.96	164.71	165.46	166.22	166.98	167.74	168.50	169.27	170.04	170.81
63	171.59	172.37	173.15	173.93	174.72	175.51	176.31	177.10	177.91	178.71
64	179.52	180.32	181.14	181.95	182.77	183.59	184.42	185.25	186.08	186.91
65	187.75	188.59	189.44	190.28	191.13	191.99	192.85	193.71	194.57	195.44
66	196.31	197.18	198.06	198.94	199.82	200.71	201.60	202.49	203.39	204.29
67	205.19	206.10	207.01	207.92	208.84	209.76	210.68	211.61	212.54	213.47
68	214.41	215.35	216.30	217.24	218.20	219.15	220.11	221.07	222.04	223.01
69	223.98	224.96	225.94	226.92	227.91	228.90	229.89	230.89	231.89	232.90
70	233.91	234.92	235.94	236.96	237.98	239.01	240.04	241.08	242.12	243.16
71	244.21	245.26	246.31	247.37	248.43	249.50	250.57	251.64	252.72	253.80
72	254.88	255.97	257.07	258.16	259.27	260.37	261.48	262.59	263.71	264.83
73	265.96	267.08	268.22	269.35	270.50	271.64	272.79	273.94	275.10	276.26
74	277.43	278.60	279.77	280.95	282.13	283.32	284.51	285.71	286.90	288.11
75	289.32	290.53	291.74	292.97	294.19	295.42	296.65	297.89	299.13	300.38
76	301.63	302.89	304.15	305.41	306.68	307.95	309.23	310.51	311.80	313.09
77	314.38	315.68	316.99	318.30	319.61	320.93	322.25	323.58	324.91	326.25
78	327.59	328.93	330.28	331.64	333.00	334.36	335.73	337.10	338.48	339.86
79	341.25	342.65	344.04	345.44	346.85	348.26	349.68	351.10	352.53	353.96
80	355.40	356.84	358.28	359.73	361.19	362.65	364.11	365.58	367.06	368.54
81	370.03	371.52	373.01	374.51	376.02	377.53	379.05	380.57	382.09	383.62
82	385.16	386.70	388.25	389.80	391.36	392.92	394.49	396.06	397.64	399.22
83	400.81	402.40	404.00	405.61	407.22	408.83	410.45	412.08	413.71	415.35
84	416.99	418.64	420.29	421.95	423.61	425.28	426.95	428.64	430.32	432.01
85	433.71	435.41	437.12	438.83	440.55	442.28	444.01	445.75	447.49	449.24
86	450.99	452.75	454.51	456.28	458.06	459.84	461.63	463.42	465.22	467.03
87	468.84	470.66	472.48	474.31	476.14	477.99	479.83	481.68	483.54	485.41
88	487.28	489.16	491.04	492.93	494.82	496.72	498.63	500.54	502.46	504.39
89	506.32	508.26	510.20	512.15	514.11	516.07	518.04	520.01	521.99	523.98
90	525.97	527.97	529.98	531.99	534.01	536.04	538.07	540.11	542.15	544.21
91	546.26	548.33	550.40	552.48	554.56	556.65	558.75	560.85	562.96	565.08
92	567.20	569.33	571.47	573.61	575.76	577.92	580.08	582.25	584.43	586.61
93	588.80	591.00	593.20	595.41	597.63	599.86	602.09	604.33	606.57	608.82
94	611.08	613.35	615.62	617.90	620.19	622.48	624.79	627.09	629.41	631.73
95	634.06	636.40	638.74	641.09	643.45	645.82	648.19	650.57	652.96	655.35
96	657.75	660.16	662.58	665.00	667.43	669.87	672.32	674.77	677.23	679.70
97	682.18	684.66	687.15	689.65	692.15	694.67	697.19	699.71	702.25	704.79
98	707.35	709.90	712.47	715.04	717.63	720.22	722.81	725.42	728.03	730.65
99	733.28	735.92	738.56	741.21	743.87	746.54	749.22	751.90	754.59	757.29
100	760.00	762.72	765.44	768.17	770.91	773.66	776.42	779.18	781.95	784.73

PRESSURE OF AQUEOUS VAPOR OVER WATER.

METRIC MEASURES.

Temperature	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
100°	760.0	787.5	815.9	845.0	875.1	906.0	937.8	970.5	1004.2	1038.8
110	1074.4	1111.0	1148.6	1187.2	1226.9	1267.7	1309.6	1352.6	1396.8	1442.1
120	1488.7	1536.4	1585.4	1635.7	1687.3	1740.2	1794.4	1850.0	1907.0	1965.4
130	2025.2	2086.5	2149.3	2213.7	2279.6	2347.0	2416.1	2486.8	2559.2	2633.2
140	2709.0	2786.5	2865.8	2947.0	3029.9	3114.7	3201.4	3290.1	3380.7	3473.3
150°	3567.9	3664.6	3763.3	3864.2	3967.2	4072.4	4179.8	4289.5	4401.5	4515.7
160	4632.4	4751.4	4872.8	4996.7	5123.1	5252.0	5383.4	5517.5	5654.2	5793.5
170	5935.6	6080.4	6228.0	6378.4	6531.7	6687.8	6846.9	7009.0	7174.0	7342.1
180	7513.3	7687.7	7865.2	8045.9	8229.8	8417.0	8607.6	8801.5	8998.9	9199.6
190°	9404	9612	9823	10038	10257	10479	10705	10935	11169	11407
200	11648	11894	12143	12397	12654	12916	13182	13452	13727	14006
210	14289	14577	14869	15165	15467	15772	16083	16398	16718	17043
220	17372	17707	18046	18391	18740	19095	19454	19819	20190	20565
230°	20946	21332	21724	22121	22524	22932	23347	23766	24192	24623
240	25061	25504	25953	26408	26870	27337	27811	28291	28778	29270
250	29770	30275	30787	31306	31832	32364	32903	33449	34002	34562
260	35128	35702	36283	36872	37467	38070	38680	39298	39923	40556
270	41197	41845	42501	43165	43836	44516	45204	45899	46603	47316
280°	48036	48765	49503	50248	51003	51766	52538	53318	54108	54906
290	55714	56530	57356	58191	59035	59888	60751	61624	62506	63398
300	64299	65211	66132	67063	68005	68956	69918	70890	71872	72865
310	73869	74883	75907	76943	77990	79047	80116	81195	82286	83389
320	84503	85628	86765	87913	89074	90246	91430	92626	93835	95056
330°	96289	97534	98793	100060	101350	102640	103950	105280	106610	107960
340	109320	110700	112090	113490	114910	116340	117780	119240	120720	122210
350	123710	125220	126760	128310	129870	131440	133030	134640	136270	137900
360	139560	141230	142920	144620	146340	148070	149820	151590	153380	155180
370	157000	158840	160690	162560	164450					

WEIGHT OF A CUBIC FOOT OF SATURATED VAPOR.

ENGLISH MEASURES.

Temperature.		Temperature.	.0	.5	Temperature.	.0	.2	.4	.6	.8
F.	Grains Troy.	F.	Grains Troy.	Grains Troy.	F.	Grains Troy.	Grains Troy.	Grains Troy.	Grains Troy.	Grains Troy.
−30°	0.095	+20°	1.244	1.273	+70°	8.066	8.117	8.170	8.223	8.276
29	0.100	21	1.301	1.332	71	8.329	8.383	8.437	8.491	8.546
28	0.106	22	1.362	1.393	72	8.600	8.656	8.711	8.766	8.823
27	0.112	23	1.425	1.457	73	8.879	8.936	8.992	9.050	9.107
26	0.119	24	1.490	1.524	74	9.165	9.223	9.281	9.341	9.400
−25	0.126	+25	1.558	1.593	+75	9.460	9.519	9.579	9.640	9.700
24	0.134	26	1.629	1.666	76	9.761	9.823	9.885	9.947	10.009
23	0.141	27	1.703	1.741	77	10.072	10.135	10.199	10.263	10.327
22	0.150	28	1.779	1.819	78	10.392	10.457	10.521	10.587	10.653
21	0.158	29	1.859	1.900	79	10.720	10.785	10.853	10.921	10.987
−20	0.167	+30	1.942	1.984	+80	11.056	11.124	11.193	11.262	11.331
19	0.176	31	2.028	2.072	81	11.401	11.471	11.542	11.613	11.685
18	0.187	32	2.118	2.159	82	11.756	11.828	11.900	11.974	12.047
17	0.197	33	2.200	2.242	83	12.121	12.195	12.269	12.344	12.419
16	0.208	34	2.286	2.330	84	12.494	12.570	12.646	12.723	12.800
−15	0.220	+35	2.375	2.420	+85	12.878	12.956	13.034	13.113	13.192
14	0.232	36	2.466	2.513	86	13.272	13.351	13.432	13.512	13.594
13	0.244	37	2.560	2.609	87	13.676	13.758	13.840	13.923	14.006
12	0.258	38	2.658	2.708	88	14.090	14.174	14.258	14.344	14.429
11	0.272	39	2.759	2.810	89	14.515	14.601	14.689	14.776	14.864
−10	0.286	+40	2.863	2.916	+90	14.951	15.040	15.129	15.219	15.309
9	0.302	41	2.970	3.026	91	15.400	15.490	15.581	15.673	15.766
8	0.318	42	3.082	3.138	92	15.858	15.951	16.045	16.139	16.234
7	0.335	43	3.196	3.254	93	16.328	16.423	16.520	16.616	16.713
6	0.353	44	3.315	3.374	94	16.810	16.909	17.007	17.106	17.205
− 5	0.371	+45	3.436	3.499	+95	17.305	17.406	17.506	17.607	17.709
4	0.391	46	3.563	3.627	96	17.812	17.914	18.018	18.121	18.226
3	0.411	47	3.693	3.759	97	18.330	18.436	18.542	18.648	18.755
2	0.433	48	3.828	3.895	98	18.863	18.971	19.079	19.188	19.298
− 1	0.455	49	3.965	4.036	99	19.407	19.518	19.629	19.741	19.853
± 0	0.479	+50	4.108	4.181	+100	19.966	20.079	20.193	20.307	20.422
+ 1	0.503	51	4.255	4.331	101	20.538	20.654	20.770	20.887	21.005
2	0.529	52	4.407	4.485	102	21.123	21.242	21.362	21.481	21.602
3	0.556	53	4.564	4.644	103	21.723	21.845	21.967	22.090	22.213
4	0.584	54	4.725	4.807	104	22.337	22.462	22.588	22.714	22.839
5	0.613	+55	4.891	4.976	+105	22.966	23.095	23.223	23.351	23.481
6	0.644	56	5.062	5.149	106	23.611	23.742	23.873	24.005	24.138
7	0.676	57	5.238	5.328	107	24.271	24.405	24.539	24.673	24.809
8	0.709	58	5.420	5.513	108	24.946	25.082	25.220	25.358	25.597
9	0.744	59	5.607	5.703	109	25.636	25.776	25.917	26.058	26.201
10	0.780	+60	5.800	5.899	+110	26.343	26.486	26.630	26.775	26.920
11	0.818	61	5.999	6.099	111	27.066	27.213	27.360	27.508	27.657
12	0.858	62	6.203	6.306	112	27.807	27.956	28.107	28.259	28.411
13	0.900	63	6.413	6.521	113	28.563	28.717	28.871	29.026	29.181
14	0.943	64	6.630	6.740	114	29.338	29.495	29.653	29.812	29.970
15	0.988	+65	6.852	6.966	+115	30.130	30.291	30.452	30.614	30.777
16	1.035	66	7.082	7.198	116	30.940	31.104	31.270	31.435	31.601
17	1.084	67	7.317	7.437	117	31.768	31.937	32.106	32.274	32.445
18	1.135	68	7.560	7.683	118	32.616	32.787	32.960	33.133	33.307
+19	1.189	+69	7.809	7.937	+119	33.482	33.657	33.834	34.010	34.189

TABLE 74.

WEIGHT OF A CUBIC METER OF SATURATED VAPOR.

METRIC MEASURES.

Temperature.		Temperature.	.0	.5	Temperature.	.0	.2	.4	.6	.8
C.	Grams.	C.	Grams.	Grams.	C.	Grams.	Grams.	Grams.	Grams.	Grams.
−29°	0.378	−17°	1.174	1.123	−5°	3.261	3.208	3.157	3.106	3.056
28	0.418	16	1.284	1.228	4	3.534	3.478	3.422	3.368	3.314
27	0.461	15	1.403	1.342	3	3.828	3.767	3.708	3.649	3.591
26	0.508	14	1.531	1.466	2	4.144	4.078	4.015	3.951	3.889
25	0.559	13	1.671	1.599	1	4.482	4.412	4.344	4.276	4.209
24	0.615	12	1.820	1.744	0	4.847	4.771	4.697	4.624	4.553
−23	0.677	−11	1.983	1.900	+0	4.847	4.914	4.982	5.051	5.121
22	0.743	10	2.158	2.069	1	5.192	5.264	5.336	5.409	5.483
21	0.816	9	2.347	2.251	2	5.559	5.634	5.711	5.789	5.868
20	0.894	8	2.551	2.447	3	5.947	6.028	6.110	6.192	6.275
19	0.980	7	2.770	2.658	4	6.360	6.445	6.532	6.619	6.708
18	1.073	6	3.006	2.886	5	6.797	6.888	6.979	7.072	7.166

Temperature.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
C.	Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	Grams.	Grams.
+6°	7.261	7.309	7.357	7.405	7.453	7.502	7.552	7.601	7.651	7.701
7	7.751	7.802	7.853	7.904	7.956	8.007	8.059	8.112	8.164	8.217
8	8.271	8.324	8.378	8.432	8.487	8.542	8.597	8.652	8.708	8.764
9	8.821	8.877	8.934	8.991	9.049	9.106	9.165	9.223	9.282	9.341
+10	9.401	9.461	9.521	9.582	9.643	9.704	9.765	9.827	9.889	9.952
11	10.015	10.078	10.142	10.205	10.270	10.334	10.400	10.465	10.530	10.597
12	10.664	10.730	10.797	10.865	10.932	11.001	11.069	11.138	11.208	11.278
13	11.348	11.418	11.489	11.561	11.632	11.704	11.777	11.850	11.922	11.997
14	12.070	12.144	12.219	12.295	12.370	12.446	12.523	12.600	12.677	12.754
+15	12.832	12.911	12.990	13.068	13.148	13.229	13.309	13.390	13.472	13.553
16	13.635	13.718	13.801	13.885	13.969	14.053	14.139	14.224	14.309	14.395
17	14.482	14.569	14.657	14.744	14.833	14.922	15.011	15.101	15.191	15.282
18	15.373	15.465	15.557	15.650	15.743	15.836	15.931	16.025	16.121	16.216
19	16.311	16.409	16.505	16.603	16.701	16.799	16.898	16.998	17.097	17.198
+20	17.300	17.401	17.503	17.606	17.708	17.812	17.917	18.021	18.126	18.232
21	18.338	18.445	18.553	18.660	18.768	18.878	18.987	19.097	19.207	19.319
22	19.430	19.542	19.655	19.769	19.882	19.996	20.112	20.227	20.343	20.461
23	20.578	20.695	20.814	20.933	21.053	21.173	21.295	21.416	21.538	21.660
24	21.783	21.907	22.032	22.157	22.282	22.409	22.536	22.663	22.791	22.920
+25	23.049	23.179	23.310	23.442	23.573	23.706	23.839	23.973	24.107	24.242
26	24.378	24.514	24.651	24.790	24.929	25.066	25.206	25.346	25.488	25.629
27	25.771	25.915	26.058	26.203	26.348	26.494	26.641	26.787	26.936	27.084
28	27.234	27.384	27.534	27.686	27.837	27.990	28.143	28.298	28.453	28.609
29	28.765	28.923	29.081	29.239	29.399	29.559	29.720	29.881	30.044	30.207
+30	30.371	30.535	30.701	30.867	31.034	31.202	31.371	31.540	31.710	31.880
31	32.052	32.225	32.398	32.572	32.747	32.923	33.100	33.277	33.454	33.633
32	33.812	33.993	34.175	34.356	34.540	34.723	34.909	35.094	35.280	35.467
33	35.656	35.844	36.034	36.224	36.416	36.609	36.801	36.995	37.190	37.386
34	37.583	37.780	37.979	38.178	38.378	38.579	38.782	38.984	39.187	39.393
+35	39.599	39.805	40.013	40.221	40.430	40.640	40.851	41.064	41.277	41.491
36	41.706	41.921	42.139	42.356	42.575	42.795	43.015	43.237	43.459	43.683
37	43.908	44.134	44.360	44.587	44.815	45.046	45.277	45.507	45.740	45.973
38	46.208	46.443	46.680	46.918	47.156	47.396	47.636	47.878	48.121	48.365
39	48.609	48.855	49.103	49.350	49.600	49.850	50.101	50.353	50.606	50.861
+40	51.117	51.373	51.631	51.890	52.150	52.410	52.673	52.936	53.200	53.466

HYGROMETRICAL TABLES.

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

ENGLISH MEASURES.

Values of $e = e' - 0.000367\,B\,(t - t')\left(1 + \frac{t' - 32}{1571}\right)$

Pressure of Saturated Aqueous Vapor, e.

Temperature.	0	1	2	3	4	5	6	7	8	9
F.	Inches.	Inches.	Inches.	Inches.	Inches	Inches.	Inches.	Inches.	Inches.	Inches.
−60°	.0010									
50	20	.0018	.0017	.0016	.0015	.0014	.0013	.0012	.0011	.0011
40	38	36	33	31	29	28	26	24	23	21
30	71	66	62	59	55	52	49	46	43	40
20	.0127	.0120	.0113	.0107	.0101	.0095	.0090	.0084	.0080	.0075

$$e = e' - 0.000367\,B\,(t - t')\left(1 + \frac{t' - 32}{1571}\right)$$

$B = 30.0$ inches

t'	$t - t'$ .0	.2	.4	.6	.8	1.0	1.2	1.4	1.6	1.8
°	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
−20°	.0127	.0106	.0085	.0063	.0042	.0021				
19	135	113	92	71	49	28	.0007			
18	143	121	.0100	79	57	36	.0015			
17	151	130	108	87	66	44	23	.0002		
16	160	138	117	96	74	53	32	.0010		
15	169	148	126	.0105	84	62	41	19		
14	179	157	136	115	93	72	50	29	.0008	
13	189	168	146	125	.0103	82	61	39	.0018	
12	200	178	157	136	114	93	71	50	29	.0007
11	211	190	168	147	125	.0104	83	61	40	.0018
10	223	202	180	159	137	116	94	73	52	30
9	236	214	193	171	150	128	.0107	85	64	43
8	249	227	206	184	163	141	120	98	77	56
7	263	241	220	198	177	155	134	.0112	91	69
6	277	256	234	213	191	170	148	127	.0105	84
5	292	271	249	228	206	185	163	142	120	.0099
4	308	287	265	244	222	201	179	158	136	.0115
3	325	304	282	261	239	218	196	175	153	132
2	343	321	300	278	257	235	214	192	171	149
− 1	361	340	318	297	275	254	232	210	189	167
± 0	381	359	338	316	294	273	251	230	208	187
+ 1	401	380	358	337	315	293	272	250	229	207
2	423	401	379	358	336	315	293	271	250	228
3	445	423	402	380	359	337	315	294	272	250
4	468	447	425	404	382	360	339	317	295	274
5	493	471	450	428	407	385	363	342	320	298
6	519	497	476	454	432	411	389	367	346	324
7	546	524	503	481	459	438	416	394	373	351
8	574	552	531	509	487	466	444	422	401	379
9	604	582	560	539	517	495	474	452	430	408
10	.0635	.0613	.0591	.0569	.0548	.0526	.0504	.0483	.0461	.0439
−20 } +10 }	$\Delta e \times \Delta B$	+.0001	+.0001	+.0002	+.0003	+.0004	+.0004	+.0005	+.0006	+.0007

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.
ENGLISH MEASURES.

Values of $e = e' - 0.000367\, B\, (t - t')\left(1 + \frac{t' - 32}{1571}\right)$

$B = 30.0$ inches

t'	$t - t'$: 2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
−10°	.0009									
9	21									
8	34	.0013								
7	48	26	.0005							
6	62	41	.0019							
5	77	56	34	.0013						
4	93	72	50	29	.0007					
3	.0110	88	67	45	.0024	.0002				
2	127	.0106	84	63	41	.0020				
− 1	146	124	.0103	81	60	38	.0016			
± 0	165	144	122	.0100	79	57	36	.0014		
+ 1	185	164	142	121	99	78	56	34	.0013	
2	207	185	163	142	.0120	.0099	77	55	34	.0012
3	229	207	186	164	142	.0121	99	78	56	34
4	252	231	209	187	166	144	.0122	.0101	79	58
5	277	255	233	212	190	168	147	125	.0104	82
6	302	281	259	237	216	194	172	151	129	.0107
7	329	308	286	264	243	221	199	178	156	134
8	357	336	314	292	271	249	227	205	184	162
9	387	365	343	322	300	278	257	235	213	191
10	.0417	.0396	.0374	.0352	.0331	.0309	.0287	.0266	.0244	.0222
−10 / +10 } $\Delta e \times \Delta B$	+.0007	+.0008	+.0009	+.0009	+.0010	+.0011	+.0012	+.0012	+.0013	+.0014

t'	$t - t'$: 4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
3°	.0013									
4	36	.0014								
5	60	39	.0017							
6	86	64	42	.0021						
7	.0113	91	69	47	.0026	.0004				
8	140	.0119	97	75	54	32	.0010			
9	170	148	.0126	.0105	83	61	40	.0018		
10	.0200	.0179	.0157	.0135	.0114	.0092	.0070	.0048	.0027	.0005
+10 $\Delta e \times \Delta B$	+.0014	+.0015	+.0016	+.0017	+.0017	+.0018	+.0019	+.0020	+.0020	+.0021

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

ENGLISH MEASURES.

Values of $e = e' - 0.000367\,B(t - t')\left(1 + \frac{t' - 32}{1571}\right)$

$B = 30.0$ inches

t'	$t - t'$									
	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
10°	$\Delta e \times \Delta B$	+.0004	+.0007	+.0011	+.0014	+.0018	+.0022	+.0025	+.0029	+.0033
10°	0.063	0.053	0.042	0.031	0.020	0.009				
11	67	56	45	34	23	.012	0.002			
12	70	59	48	37	27	16	5			
13	74	63	52	41	30	19	8			
14	77	66	56	45	34	23	.012	0.001		
15	81	70	59	49	38	27	16	5		
16	85	74	63	53	42	31	20	9		
17	89	79	68	57	46	35	24	.013	0.002	
18	94	83	72	61	50	39	28	18	7	
19	.099	88	77	66	55	44	33	22	11	0.000
20	.103	92	81	71	60	49	38	27	16	.005
21	.108	97	86	76	65	54	43	32	21	.010
22	.114	.103	92	81	70	59	48	37	26	15
23	.119	.108	97	86	75	64	53	42	32	21
24	.125	.114	.103	92	81	70	59	48	37	26
25	.131	.120	.109	98	87	76	65	54	43	32
26	.137	.126	.115	.104	93	82	71	60	49	38
27	.143	.133	.122	.111	.100	89	78	67	56	45
28	.150	.139	.128	.117	.106	95	84	73	62	51
29	.157	.146	.135	.124	.113	.102	91	80	69	58
30	.165	.154	.143	.132	.121	.110	99	88	77	66
31	.172	.161	.150	.139	.128	.117	.106	95	84	73
32	.180	.169	.158	.147	.136	.125	.114	.103	92	81
33	.188	.177	.166	.155	.144	.133	.122	.111	.100	89
34	.195	.184	.173	.162	.151	.140	.129	.118	.107	96
35	.203	.192	.181	.170	.159	.148	.137	.126	.115	.104
36	.212	.201	.190	.179	.168	.157	.145	.134	.123	.112
37	.220	.209	.198	.187	.176	.165	.154	.143	.132	.121
38	.229	.218	.207	.196	.185	.174	.163	.152	.141	.130
39	.238	.227	.216	.205	.194	.183	.172	.161	.150	.139
40	.248	.237	.226	.215	.203	.192	.181	.170	.159	.148
41	.258	.246	.235	.224	.213	.202	.191	.180	.169	.158
42	.268	.257	.246	.234	.223	.212	.201	.190	.179	.168
43	.278	.267	.256	.245	.234	.223	.212	.201	.190	.178
44	.289	.278	.267	.256	.245	.234	.223	.211	.200	.189
45	.300	.289	.278	.267	.256	.245	.234	.223	.211	.200
46	.312	.301	.290	.279	.268	.256	.245	.234	.223	.212
47	.324	.313	.302	.291	.280	.268	.257	.246	.235	.224
48	.336	.325	.314	.303	.292	.281	.270	.259	.248	.236
49	.349	.338	.327	.316	.305	.294	.283	.271	.260	.249
50	.363	.351	.340	.329	.318	.307	.296	.285	.274	.262
51	.376	.365	.354	.343	.332	.321	.309	.298	.287	.276
52	.390	.379	.368	.357	.346	.335	.324	.312	.301	.290
53	.405	.394	.383	.372	.361	.349	.338	.327	.316	.305
54	.420	.409	.398	.387	.376	.364	.353	.342	.331	.320
55	.436	.425	.414	.402	.391	.380	.369	.358	.347	.335
56	.452	.441	.430	.419	.407	.396	.385	.374	.363	.352
57	.469	.458	.446	.435	.424	.413	.402	.390	.379	.368
58	.486	.475	.464	.452	.441	.430	.419	.408	.396	.385
59	.504	.493	.481	.470	.459	.448	.437	.425	.414	.403
60	0.522	0.511	0.500	0.488	0.477	0.466	0.455	0.444	0.432	0.421
60	$\Delta e \times \Delta B$	+.0004	+.0007	+.0011	+.0015	+.0019	+.0022	+.0026	+.0030	+.0034

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

ENGLISH MEASURES.

Values of $e = e' - 0.000367\, B\, (t - t') \left(1 + \frac{t' - 32}{1571} \right)$

$B = 30.00$

t'	$t - t'$									
	10	11	12	13	14	15	16	17	18	19
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
30° $\Delta e \times \Delta B$	+.0037	+.0040	+.0044	+.0048	+.0051	+.0055	+.0059	+.0062	+.0066	+.0070
22°	0.004									
23	.010									
24	15									
25	21	0.010								
26	27	16	0.005							
27	34	23	.012	0.001						
28	40	29	18	7						
29	47	36	25	.014	0.003					
30	55	44	33	22	.011	0.000				
31	62	51	40	29	18	.007				
32	70	59	48	37	26	.015	0.004			
33	78	67	55	44	33	22	11	0.000		
34	85	74	63	52	41	30	19	.008		
35	93	82	71	60	49	38	27	.016	0.005	
36	.101	90	79	68	57	46	35	24	.013	0.002
37	.110	99	88	77	66	55	43	32	21	.010
38	.119	.108	96	85	74	63	52	41	30	19
39	.128	.117	.105	94	83	72	61	50	39	28
40	.137	.126	.115	.104	93	82	71	60	49	37
41	.147	.136	.125	.114	.103	91	80	69	58	47
42	.157	.146	.135	.124	.113	.101	90	79	68	57
43	.167	.156	.145	.134	.123	.112	.101	90	79	68
44	.178	.167	.156	.145	.134	.123	.112	.100	89	78
45	.189	.178	.167	.156	.145	.134	.123	.112	.100	89
46	.201	.190	.179	.168	.156	.145	.134	.123	.112	.101
47	.213	.202	.191	.180	.168	.157	.146	.135	.124	.113
48	.225	.214	.203	.192	.181	.170	.159	.147	.136	.125
49	.238	.227	.216	.205	.193	.182	.171	.160	.149	.138
50	.251	.240	.229	.218	.207	.196	.184	.173	.162	.151
51	.265	.254	.243	.231	.220	.209	.198	.187	.176	.165
52	.279	.268	.257	.246	.234	.223	.212	.201	.190	.179
53	.294	.282	.271	.260	.249	.238	.227	.216	.204	.193
54	.309	.297	.286	.275	.264	.253	.242	.231	.219	.208
55	.324	.313	.302	.291	.280	.268	.257	.246	.235	.224
56	.340	.329	.318	.307	.296	.285	.273	.262	.251	.240
57	.357	.346	.334	.323	.312	.301	.290	.279	.267	.256
58	.374	.363	.352	.340	.329	.318	.307	.296	.284	.273
59	.392	.381	.369	.358	.347	.336	.325	.313	.302	.291
60	0.410	0.399	0.388	0.376	0.365	0.354	0.343	0.331	0.320	0.309
60 $\Delta e \times \Delta B$	+.0037	+.0041	+.0045	+.0049	+.0052	+.0056	+.0060	+.0064	+.0067	+.0071

TABLE 75.

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

ENGLISH MEASURES.

Values of $e = e' - 0.000367\ B\,(t - t')\left(1 + \frac{t' - 32}{1571}\right)$

$B = 30.00$

t'	$t-t'$									
	20	21	22	23	24	25	26	27	28	29
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
40° $\Delta e \times \Delta B$	+.0074	+.0077	+.0081	+.0085	+.0089	+.0092	+.0096	+.0100	+.0103	+.0107
38°	0.008									
39	.017	0.006								
40	26	.015	0.004							
41	36	25	.014	0.003						
42	46	35	24	.013	0.002					
43	56	45	34	23	.012	0.001				
44	67	56	45	34	23	.012	0.001			
45	78	67	56	45	34	23	.012	0.001		
46	90	79	68	57	45	34	23	.012	0.001	
47	.102	91	79	68	57	46	35	24	13	0.002
48	.114	.103	92	81	70	58	47	36	25	.014
49	.127	.116	.104	93	82	71	60	49	38	27
50	.140	.129	.118	.106	95	84	73	62	51	40
51	.153	.142	.131	.120	.109	98	87	75	64	53
52	.167	.156	.145	.134	.123	.112	.101	89	78	67
53	.182	.171	.160	.149	.137	.126	.115	.104	93	82
54	.197	.186	.175	.164	.152	.141	.130	.119	.108	97
55	.212	.201	.190	.179	.168	.157	.145	.134	.123	.112
56	.229	.218	.206	.195	.184	.173	.162	.150	.139	.128
57	.245	.234	.223	.211	.200	.189	.178	.167	.156	.144
58	.262	.251	.240	.228	.217	.206	.195	.184	.173	.161
59	.280	.269	.257	.246	.235	.224	.213	.201	.190	.179
60	0.298	0.287	0.275	0.264	0.253	0.242	0.231	0.219	0.208	0.197
60 $\Delta e \times \Delta B$	+.0075	+.0078	+.0082	+.0086	+.0090	+.0093	+.0097	+.0101	+.0105	+.0108

t'	$t-t'$									
	30	31	32	33	34	35	36	37	38	39
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
50° $\Delta e \times \Delta B$	+.0111	+.0115	+.0119	+.0122	+.0126	+.0130	+.0134	+.0137	+.0141	+.0145
48°	0.003									
49	.015	.004								
50	29	.017	0.006							
51	42	31	.020	0.009						
52	56	45	34	.023	0.011	0.000				
53	70	59	48	37	26	.015	0.004			
54	85	74	63	52	41	30	.018	0.007		
55	.101	90	78	67	56	45	34	.023	0.011	0.000
56	.117	.106	95	83	72	61	50	39	28	.016
57	.133	.122	.111	.100	88	77	66	55	44	32
58	.150	.139	.128	.117	.105	94	83	72	61	49
59	.168	.157	.145	.134	.123	.112	.101	89	78	67
60	0.186	0.175	0.163	0.152	0.141	0.130	0.119	0.107	0.096	0.085
60 $\Delta e \times \Delta B$	+.0112	+.0116	+.0120	+.0123	+.0127	+.0131	+.0134	+.0138	+.0142	+.0146

t'	$t-t'$									
	40	41	42	43	44	45	46			
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.			
56°	0.005									
57	.021	0.010								
58	38	27	0.016	0.005						
59	56	45	33	.022	0.011	0.000				
60	0.074	0.063	0.051	0.040	0.029	0.018	0.007			
60 $\Delta e \times \Delta B$	+.0149	+.0153	+.0157	+.0161	+.0164	+.0168	+.0172			

REDUCTION OF PSYCHROMETRIC OBSERVATION.

ENGLISH MEASURES.

Values of $e = e' - 0.000367\,B\,(t - t')\left(1 + \frac{t' - 32}{1571}\right)$

$B = 30.00$

t'	$t-t'$										
	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
60°	$\Delta e \times \Delta B$	+.0004	+.0007	+.0011	+.0015	+.0019	+.0022	+.0026	+.0030	+.0034	+.0037
60°	0.522	0.511	0.500	0.488	0.477	0.466	0.455	0.444	0.432	0.421	0.410
61	.541	.530	.518	.507	.496	.485	.474	.462	.451	.440	.429
62	.560	.549	.538	.527	.516	.504	.493	.482	.471	.459	.448
63	.580	569	.558	.547	.536	.524	.513	.502	.491	.479	.468
64	.601	.590	.579	.568	.556	.545	.534	.523	.511	.500	.489
65	.623	.611	.600	.589	.578	.566	.555	.544	.533	.521	.510
66	.645	.633	.622	.611	.600	.588	.577	.566	.555	.543	.532
67	.667	.656	.645	.634	.622	.611	.600	.589	.577	.566	.555
68	.691	.680	.668	.657	.646	.635	.623	.612	.601	.590	.578
69	.715	.704	.692	.681	.670	.659	.647	.636	.625	.614	.602
70	.740	.729	.717	.706	.695	.684	.672	.661	.650	.638	.627
71	.766	.754	.743	.732	.720	.709	.698	.687	.675	.664	.653
72	.792	.781	.769	.758	.747	.735	.724	.713	.702	.690	.679
73	.819	.808	.797	.785	.774	.763	.751	.740	.729	.717	.706
74	.847	.836	.824	.813	.802	.791	.779	.768	.757	.745	.734
75	.876	.865	.853	.842	.831	.819	.808	.797	.786	.774	.763
76	.906	.894	.883	.872	.860	.849	.838	.826	.815	.804	.792
77	.936	.925	.914	.902	.891	.880	.868	.857	.846	.834	.823
78	.968	.956	.945	.934	.922	.911	.900	.888	.877	.866	.854
79	1.000	.989	.977	.966	.955	.943	.932	.921	.909	.898	.887
80	1.033	1.022	1.011	.999	.988	.977	.965	.954	.943	.931	.920
81	.068	.056	.045	1.034	1.022	1.011	.999	.988	.977	.965	.954
82	.103	.092	.080	.069	.057	.046	1.035	1.023	1.012	1.001	.989
83	.139	.128	.116	.105	.094	.082	.071	.060	.048	.037	1.026
84	.176	.165	.154	.142	.131	.120	.108	.097	.086	.074	.063
85	1.215	1.204	1.192	1.181	1.169	1.158	1.147	1.135	1.124	1.112	1.101
86	.254	.243	.232	.220	.209	.197	.186	.175	.163	.152	.140
87	.295	.284	.272	.261	.249	.238	.227	.215	.204	.192	.181
88	.336	.325	.314	.302	.291	.279	.268	.257	.245	.234	.222
89	.379	.368	.357	.345	.334	.322	.311	.300	.288	.277	.265
90	1.423	1.412	1.401	1.389	1.378	1.366	1.355	1.343	1.332	1.321	1.309
91	.469	.457	.446	.435	.423	.412	.400	.389	.377	.366	.355
92	.515	.504	.492	.481	.470	.458	.447	.435	.424	.412	.401
93	.563	.552	.540	.529	.517	.506	.494	.483	.471	.460	.449
94	.612	.601	.589	.578	.566	.555	.543	.532	.521	.509	.498
95	1.662	1.651	1.640	1.628	1.617	1.605	1.594	1.582	1.571	1.559	1.548
96	.714	.703	.691	.680	.668	.657	.646	.634	.623	.611	.600
97	.767	.756	.744	.733	.722	.710	.699	.687	.776	.664	.653
98	.822	.811	.799	.788	.776	.765	.753	.742	.730	.719	.707
99	.878	.867	.855	.844	.832	.821	.809	.798	.786	.775	.763
100	1.936	1.924	1.913	1.901	1.890	1.878	1.867	1.855	1.844	1.832	1.821
101	.994	.983	.972	.960	.949	.937	.926	.914	.903	.891	.880
102	2.055	2.043	2.032	2.020	2.009	.997	.986	.974	.963	.951	.940
103	.117	.106	.094	.083	.071	2.060	2.048	2.037	2.025	2.014	2.002
104	.181	.169	.158	.146	.135	.123	.112	.100	.089	.077	.066
105	2.246	2.235	2.223	2.212	2.200	2.189	2.177	2.166	2.154	2.143	2.131
106	.314	.302	.290	.279	.267	.256	.244	.233	.221	.210	.198
107	.382	.371	.359	.348	.336	.325	.313	.302	.290	.278	.267
108	.453	.441	.430	.418	.407	.395	.384	.372	.361	.349	.337
109	.525	.514	.502	.491	.479	.467	.456	.444	.433	.421	.410
110	2.599	2.588	2.576	2.565	2.553	2.542	2.530	2.519	2.507	2.495	2.484
110	$\Delta e \times \Delta B$	+.0004	+.0008	+.0012	+.015	+.0019	+.0023	+.0027	+.0031	+.0035	+.0039

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

ENGLISH MEASURES.

Values of $e = e' - 0.000367\,B\,(t - t')\left(1 + \frac{t' - 32}{1571}\right)$

$B = 30.00$

t'	$t - t'$										
	0.0	11	12	13	14	15	16	17	18	19	20
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
60°	$\Delta e \times \Delta B$	+.0041	+.0045	+.0049	+.0052	+.0056	+.0060	+.0063	+.0067	+.0071	+.0075
60°	0.522	0.399	0.388	0.376	0.365	0.354	0.343	0.331	0.320	0.309	0.298
61	.541	0.418	.406	.395	.384	.373	.361	.350	.339	.328	.317
62	.560	.437	.426	.415	.403	.392	.381	.370	.358	.347	.336
63	.580	.457	.446	.435	.423	.412	.401	.390	.378	.367	.356
64	.601	.478	.466	.455	.444	.433	.422	.410	.399	.388	.377
65	.623	.499	.488	.476	.465	.454	.443	.431	.420	.409	.398
66	.645	.521	.510	.498	.487	.476	.465	.453	.442	.431	.420
67	.667	.544	.532	.521	.510	.499	.487	.476	.465	.454	.442
68	.691	.567	.556	.544	.533	.522	.511	.499	.488	.477	.466
69	.715	.591	.580	.568	.557	.546	.535	.523	.512	.501	.490
70	.740	.616	.605	.593	.582	.571	.559	.548	.537	.526	.514
71	.766	.641	.630	.619	.608	.596	.585	.574	.562	.551	.540
72	.792	.668	.656	.645	.634	.623	.611	.600	.589	.577	.566
73	.819	.695	.684	.672	.661	.650	.638	.627	.616	.604	.593
74	.847	.723	.711	.700	.689	.678	.666	.655	.644	.632	.621
75	.876	.752	.740	.729	.718	.706	.695	.684	.672	.661	.650
76	.906	.781	.770	.758	.747	.736	.725	.713	.702	.691	.679
77	.936	.812	.800	.789	.778	.766	.755	.744	.732	.721	.710
78	.968	.843	.832	.820	.809	.798	.786	.775	.764	.752	.741
79	1.000	.875	.864	.853	.841	.830	.819	.807	.796	.785	.773
80	1.033	.909	.897	.886	.875	.863	.852	.841	.829	.818	.806
81	.068	.943	.931	.920	.909	.897	.886	.875	.863	.852	.841
82	.103	.978	.967	.955	.944	.932	.921	.910	.898	.887	.876
83	.139	1.014	1.003	.991	.980	.969	.957	.946	.935	.923	.912
84	.176	.051	.040	1.029	1.017	1.006	.995	.983	.972	.960	.949
85	1.215	1.090	1.078	1.067	1.056	1.044	1.033	1.021	1.010	.999	.987
86	.254	.129	.118	.106	.095	.083	.072	.061	.049	1.038	1.027
87	.295	.170	.158	.147	.135	.124	.113	.101	.090	.078	.067
88	.336	.211	.200	.188	.177	.165	.154	.143	.131	.120	.108
89	.379	.254	.242	.231	.220	.208	.197	.185	.174	.163	.151
90	1.423	1.298	1.286	1.275	1.264	1.252	1.241	1.229	1.218	1.206	1.195
91	.469	.343	.332	.320	.309	.297	.286	.275	.263	.252	.240
92	.515	.390	.378	.367	.355	.344	.332	.321	.310	.298	.287
93	.563	.437	.426	.414	.403	.391	.380	.369	.357	.346	.334
94	.612	.486	.475	.463	.452	.440	.429	.418	.406	.395	.383
95	1.662	1.537	1.525	1.514	1.502	1.491	1.479	1.468	1.456	1.445	1.433
96	.714	.588	.577	.565	.554	.542	.531	.520	.508	.497	.485
97	.767	.641	.630	.618	.607	.595	.584	.572	.561	.550	.538
98	.822	.696	.684	.673	.661	.650	.638	.627	.615	.604	.593
99	.878	.752	.740	.729	.717	.706	.694	.683	.671	.660	.648
100	1.936	1.809	1.798	1.786	1.775	1.763	1.752	1.740	1.729	1.717	1.706
101	.994	.868	.857	.845	.834	.822	.811	.799	.788	.776	.765
102	2.055	.928	.917	.905	.894	.882	.871	.859	.848	.836	.825
103	.117	.991	.979	.968	.956	.944	.933	.921	.910	.898	.887
104	.181	2.054	2.043	2.031	2.020	2.008	.997	.985	.974	.962	.951
105	2.246	2.120	2.108	2.097	2.085	2.073	2.062	2.050	2.039	2.027	2.016
106	.314	.187	.175	.164	.152	.141	.129	.118	.106	.094	.083
107	.382	.255	.244	.232	.221	.209	.198	.186	.175	.163	.152
108	.453	.326	.314	.302	.291	.280	.268	.257	.245	.234	.222
109	.525	.398	.387	.375	.364	.352	.340	.329	.317	.306	.294
110	2.599	2.472	2.461	2.449	2.438	2.426	2.414	2.403	2.391	2.380	2.368
110	$\Delta e \times \Delta B$	+.0042	+.0046	+.0050	+.0054	+.0058	+.0062	+.0065	+.0069	+.0073	+.0077

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

ENGLISH MEASURES.

Values of $e=e'-0.000367\,B\,(t-t')\left(1+\frac{t'-32}{1571}\right)$

$B=30.00$

t'	$t-t'$										
	0.0	21	22	23	24	25	26	27	28	29	30
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
60°	$\Delta e \times \Delta B$	+.0078	+.0082	+.0086	+.0090	+.0093	+.0097	+.0101	+.0105	+.0108	+.0112
60°	0.522	0.287	0.275	0.264	0.253	0.242	0.231	0.219	0.208	0.197	0.186
61	.541	0.305	.294	.283	.272	.261	.249	.238	.227	.216	.205
62	.560	.325	.314	.302	.291	.280	.269	.257	.246	.235	.224
63	.580	.345	.334	.322	.311	.300	.289	.277	.266	.255	.244
64	.601	.365	.354	.343	.332	.320	.309	.298	.287	.276	.264
65	.623	.387	.375	.364	.353	.342	.330	.319	.308	.297	.285
66	.645	.408	.397	.386	.375	.363	.352	.341	.330	.319	.307
67	.667	.431	.420	.409	.397	.386	.375	.364	.352	.341	.330
68	.691	.454	.443	.432	.421	.409	.398	.387	.376	.364	.353
69	.715	.478	.467	.456	.445	.433	.422	.411	.399	.388	.377
70	.740	.503	.492	.481	.469	.458	.447	.435	.424	.413	.402
71	.766	.529	.517	.506	.495	.483	.472	.461	.450	.438	.427
72	.792	.555	.544	.532	.521	.510	.498	.487	.476	.464	.453
73	.819	.582	.571	.559	.548	.537	.525	.514	.503	.491	.480
74	.847	.610	.598	.587	.576	.564	.553	.542	531	.519	.508
75	.876	.638	.627	.616	.605	.593	.582	.571	.559	.548	.537
76	.906	.668	.657	.645	.634	.623	.611	.600	.589	.577	.566
77	.936	.698	.687	.676	.664	.653	.642	.630	.619	.608	.596
78	.968	.730	.718	.707	.696	.684	.673	.662	.650	.639	.628
79	1.000	.762	.751	.739	.728	.717	.705	.694	.683	.671	.660
80	1.033	.795	.784	.772	.761	.750	.738	.727	.716	.704	.693
81	.068	.829	.818	.806	.795	.784	.772	.761	.750	.738	.727
82	.103	.864	.853	.842	.830	.819	.808	.796	.785	.773	.762
83	.139	.900	.889	.878	.866	.855	.844	.832	.821	.810	.798
84	.176	.938	.926	.915	.904	.892	.881	.869	.858	.847	.835
85	1.215	.976	.965	.953	.942	.930	.919	.908	.896	.885	.873
86	.254	1.015	1.004	.992	.981	.970	.958	.947	.935	.924	.913
87	.295	.056	.044	1.033	1.021	1.010	.999	.987	.976	.964	.953
88	.336	.097	.086	.074	.063	.051	1.040	1.029	1.017	1.006	.994
89	.379	.140	.128	.117	.106	.094	.083	.071	.060	.049	1.037
90	1.423	1.184	1.172	1.161	1.149	1.138	1.127	1.115	1.104	1.092	1.081
91	.469	.229	.217	.206	.195	.183	.172	.160	.149	.138	.126
92	.515	.275	.264	.252	.241	.230	.218	.207	.195	.184	.172
93	.563	.323	.311	.300	.288	.277	.266	.254	.243	.231	.220
94	.612	.372	.360	.349	.337	.326	.315	.303	.292	.280	.269
95	1.662	1.422	1.411	1.399	1.388	1.376	1.365	1.353	1.342	1.330	1.319
96	.714	.474	.462	.451	.439	.428	.416	.405	.393	.382	.371
97	.767	.527	.515	.504	.492	.481	.469	.458	.446	.435	.423
98	.822	.581	.570	.558	.547	.535	.524	.512	.501	.489	.478
99	.878	.637	.625	.614	.602	.591	.580	.568	.557	.545	.534
100	1.936	1.694	1.683	1.671	1.660	1.648	1.637	1.625	1.614	1.602	1.591
101	.994	.753	.742	.730	.719	.707	.696	.684	.673	.661	.650
102	2.055	.813	.802	.790	.779	.767	.756	.744	.733	.721	.710
103	.117	.875	.864	.852	.841	.829	.818	.806	.795	.783	.772
104	.181	.939	.928	.916	.905	.893	.882	.870	.858	.847	.835
105	2.246	2.004	1.993	1.981	1.970	1.958	1.947	1.935	1.924	1.912	1.901
106	.314	.071	2.060	2.048	2.037	2.025	2.014	2.002	.991	.979	.968
107	.382	.140	.129	.117	.105	.094	.082	.071	2.059	2.048	2.036
108	.453	.211	.199	.187	.176	.164	.153	.141	.130	.118	.107
109	.525	.283	.271	.260	.248	.236	.225	.213	.202	.190	.179
110	2.599	2.357	2.345	2.334	2.322	2.310	2.299	2.287	2.276	2.264	2.253
110	$\Delta e \times \Delta B$	+.0081	+.0085	+.0089	+.0092	+.0096	+.0100	+.0104	+.0108	+.0112	+.0116

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

ENGLISH MEASURES.

Values of $e = e' - 0.000367\, B\, (t - t') \left(1 + \frac{t' - 32}{1571}\right)$

$B = 30.00$

t'	$t - t'$										
	0.0	31	32	33	34	35	36	37	38	39	40
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
60°	$\Delta e \times \Delta B$	+.0116	+.0120	+.0123	+.0127	+.0131	+.0134	+.0138	+.0142	+.0146	+.0149
60°	0.522	0.175	0.163	0.152	0.141	0.130	0.119	0.107	0.096	0.085	0.074
61	.541	.193	.182	.171	.160	.148	.137	.126	.115	.104	.092
62	.560	.213	.201	.190	.179	.168	.156	.145	.134	.123	.112
63	.580	.232	.221	.210	.199	.188	.176	.165	.154	.143	.131
64	.601	.253	.242	.231	.219	.208	.197	.186	.174	.163	.152
65	.623	.274	.263	.252	.240	.229	.218	.207	.195	.184	.173
66	.645	.296	.285	.274	.262	.251	.240	.229	.217	.206	.195
67	.667	.318	.307	.296	.285	.273	.262	.251	.240	.228	.217
68	.691	.342	.330	.319	.308	.297	.285	.274	.263	.252	.240
69	.715	.366	.354	.343	.332	.321	.309	.298	.287	.275	.264
70	.740	.390	.379	.368	.357	.345	.334	.323	.311	.300	.289
71	.766	.416	.404	.393	.382	.371	.359	.348	.337	.325	.314
72	.792	.442	.431	.419	.408	.397	.385	.374	.363	.352	.340
73	.819	.469	.458	.446	.435	.424	.412	.401	.390	.379	.367
74	.847	.496	.485	.474	.463	.451	.440	.429	.418	.406	.395
75	.876	.525	.514	.503	.491	.480	.469	.457	.446	.435	.424
76	.906	.555	.543	.532	.521	.509	.498	.487	.476	.464	.453
77	.936	.585	.574	.562	.551	.540	.529	.517	.506	.495	.483
78	.968	.616	.605	.594	.582	.571	.560	.548	.537	.526	.514
79	1.000	.649	.637	.626	.615	.603	.592	.581	.569	.558	.547
80	1.033	.682	.670	.659	.648	.636	.625	.614	.602	.591	.580
81	.068	.716	.704	.693	.682	.670	.659	.648	.636	.625	.613
82	.103	.751	.739	.728	.717	.705	.694	.683	.671	.660	.648
83	.139	.787	.775	.764	.753	.741	.730	.719	.707	.696	.685
84	.176	.824	.813	.801	.790	.778	.767	.756	.744	.733	.722
85	1.215	.862	.851	.839	.828	.817	.805	.794	.782	.771	.760
86	.254	.901	.890	.878	.867	.856	.844	.833	.822	.810	.799
87	.295	.942	.930	.919	.907	.896	.885	.873	.862	.850	.839
88	.336	.983	.972	.960	.949	.937	.926	.915	.903	.892	.880
89	.379	1.026	1.014	1.003	.991	.980	.969	.957	.946	.934	.923
90	1.423	1.069	1.058	1.047	1.035	1.024	1.012	1.001	.990	.978	967
91	.469	.115	.103	.092	.080	.069	.058	.046	1.035	1.023	1.012
92	.515	.161	.150	.138	.127	.115	.104	.092	.081	.070	.058
93	.563	.208	.197	.186	.174	.163	.151	.140	.128	.117	.105
94	.612	.257	.246	.234	.223	.212	.200	.189	.177	.166	.154
95	1.662	1.308	1.296	1.285	1.273	1.262	1.250	1.239	1.227	1.216	1.204
96	.714	.359	.348	.336	.325	.313	.302	.290	.279	.267	.256
97	.767	.412	.401	.389	.378	.366	.355	.343	.332	.320	.309
98	.822	.466	.455	.443	.432	.420	.409	.398	.386	.375	.363
99	.878	.522	.511	.499	.488	.476	.465	.453	.442	.430	.419
100	1.936	1.579	1.568	1.556	1.545	1.533	1.522	1.510	1.499	1.488	1.476
101	.994	.638	.627	.615	.604	.592	.581	.569	.558	.546	.535
102	2.055	.698	.687	.675	.664	.652	.641	.629	.618	.606	.595
103	.117	.760	.749	.737	.726	.714	.703	.691	.680	.668	.657
104	.181	.824	.812	.801	.789	.778	.766	.755	.743	.732	.720
105	2.246	1.889	1.878	1.866	1.855	1.843	1.832	1.820	1.808	1.797	1.785
106	.314	.956	.945	.933	.922	.910	.898	.887	.875	.864	.852
107	.382	2.025	2.013	2.002	.990	.979	.967	.955	.944	.932	.921
108	.453	.095	.084	.072	2.060	2.049	2.037	2.026	2.014	2.003	.991
109	2.525	2.167	2.156	2.144	2.133	2.121	2.109	2.098	2.086	2.075	2.063
110	$\Delta e \times \Delta B$	+.0119	+.0123	+.0127	+.0131	+.0135	+.0139	+.0143	+.0146	+.0150	+.0154

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

ENGLISH MEASURES.

Values of $e = e' - 0.000367\,B\,(t - t')\left(1 + \frac{t' - 32}{1571}\right)$

$B = 30.00$

t'	$t - t'$										
	0.0	41	42	43	44	45	46	47	48	49	50
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
60°	$\Delta e \times \Delta B$	+.0153	+.0157	+.0161	+.0164	+.0168	+.0172	+.0176	+.0179	+.0183	+.0187
60°	0.522	0.063	0.051	0.040	0.029	0.018	0.007				
61	.541	.081	.070	.059	.048	.036	.025	0.014	0.003		
62	.560	.100	.089	.078	.067	.055	.044	.033	.022	0.011	
63	.580	.120	.109	.098	.087	.075	.064	.053	.042	.030	0.019
64	.601	.141	.129	.118	.107	.096	.085	.073	.062	.051	.040
65	.623	.162	.150	.139	.128	.117	.105	.094	.083	.072	.061
66	.645	.184	.172	.161	.150	.139	.127	.116	.105	.094	.082
67	.667	.206	.195	.183	.172	.161	.150	.138	.127	.116	.105
68	.691	.229	.218	.207	.195	.184	.173	.162	.150	.139	.128
69	.715	.253	.242	.230	.219	.208	.197	.185	.174	.163	.152
70	.740	.278	.266	.255	.244	.232	.221	.210	.199	.187	.176
71	.766	.303	.292	.280	.269	.258	.246	.235	.224	.213	.201
72	.792	.329	.318	.306	.295	.284	.273	.261	.250	.239	.227
73	.819	.356	.345	.333	.322	.311	.299	.288	.277	.266	.254
74	.847	.384	.372	.361	.350	.338	.327	.316	.304	.293	.282
75	.876	.412	.401	.390	.378	.367	.356	.344	.333	.322	.310
76	.906	.442	.430	.419	.408	.396	.385	.374	.362	.351	.340
77	.936	.472	.461	.449	.438	.427	.415	.404	.393	.381	.370
78	.968	.503	.492	.480	.469	.458	.446	.435	.424	.412	.401
79	1.000	.535	.524	.513	.501	.490	.478	.467	.456	.444	.433
80	1.033	.568	.557	.546	.534	.523	.511	.500	.489	.477	.466
81	.068	.602	.591	.579	.568	.557	.545	.534	.523	.511	.500
82	.103	.637	.626	.614	.603	.592	.580	.569	.558	.546	.535
83	.139	.673	.662	.650	.639	.628	.616	.605	.594	.582	.571
84	.176	.710	.699	.687	.676	.665	.653	.642	.631	.619	.608
85	1.215	.748	.737	.725	.714	.703	.691	.680	.669	.657	.646
86	.254	.787	.776	.765	.753	.742	.730	.719	.708	.696	.685
87	.295	.828	.816	.805	.793	.782	.771	.759	.748	.737	.725
88	.336	.869	.858	.846	.835	.823	.812	.801	.789	.778	.766
89	.379	.912	.900	.889	.877	.866	.855	.843	.832	.820	.809
90	1.423	.955	.944	.932	.921	.910	.898	.887	.875	.864	.853
91	.469	1.000	.989	.978	.966	.955	.943	.932	.920	.909	.898
92	.515	.047	1.035	1.024	1.012	1.001	.989	.978	.967	.955	.944
93	.563	.094	.083	.071	.060	.048	1.037	1.025	1.014	1.003	.991
94	.612	.143	.131	.120	.109	.097	.086	.074	.063	.051	1.040
95	1.662	1.193	1.182	1.170	1.159	1.147	1.136	1.124	1.113	1.101	1.090
96	.714	.244	.233	.222	.210	.199	.187	.176	.164	.153	.141
97	.767	.297	.286	.274	.263	.251	.240	.229	.217	.206	.194
98	.822	.352	.340	.329	.317	.306	.294	.283	.271	.260	.248
99	1.878	1.407	1.396	1.384	1.373	1.361	1.350	1.338	1.327	1.316	1.304
100	$\Delta e \times \Delta B$	+.0157	+.0161	+.0165	+.0168	+.0172	+.0176	+0.180	+.0184	+.0188	+.0191

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

ENGLISH MEASURES.

Values of $e = e' - 0.000367\, B\, (t - t')\left(1 + \frac{t' - 32}{1571}\right)$

$B = 30.00$

t'	$t - t'$										
	0.0	51	52	53	54	55	56	57	58	59	60
F.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
70°	$\Delta e \times \Delta B$	+.0192	+.0195	+.0199	+.0203	+.0207	+.0210	+.0214	+.0218	+.0222	+.0226
62°	0.560										
63	.580	0.008									
64	.601	0.028	0.017	0.006							
65	.623	.049	.038	.027	0.016	0.004					
66	.645	.071	.060	.049	.037	.026	0.015	0.004			
67	.667	.093	.082	.071	.060	.048	.037	.026	0.015	0.003	
68	.691	.116	.105	.094	.083	.071	.060	.049	.038	.026	0.015
69	.715	.140	.129	.118	.106	.095	.084	.073	.061	.050	.039
70	.740	.165	.154	.142	.131	.120	.108	.097	.086	.075	.063
71	.766	.190	.179	.167	.156	.145	.134	.122	.111	.100	.089
72	.792	.216	.205	.194	.182	.171	.160	.148	.137	.126	.114
73	.819	.243	.232	.220	.209	.198	.186	.175	.164	.153	.141
74	.847	.271	.259	.248	.237	.225	.214	.203	.191	.180	.169
75	.876	.299	.288	.276	.265	.254	.243	.231	.220	.209	.197
76	.906	.328	.317	.306	.294	.283	.272	.260	.249	.238	.226
77	.936	.359	.347	.336	.325	.313	.302	.291	.279	.268	.257
78	.968	.390	.378	.367	.356	.344	.333	.322	.310	.299	.288
79	1.000	.422	.410	.399	.388	.376	.365	.354	.342	.331	.320
80	1.033	.455	.443	.432	.421	.409	.398	.387	.375	.364	.353
81	.068	.489	.477	.466	.455	.443	.432	.420	.409	.398	.386
82	.103	.524	.512	.501	.489	.478	.467	.455	.444	.433	.421
83	.139	.559	.548	.537	.525	.514	.503	.491	.480	.469	.457
84	.176	.596	.585	.574	.562	.551	.540	.528	.517	.505	.494
85	1.215	.634	.623	.612	.600	.589	.578	.566	.555	.543	.532
86	.254	.673	.662	.651	.639	.628	.617	.605	.594	.582	.571
87	.295	.714	.702	.691	.680	.668	.657	.645	.634	.623	.611
88	.336	.755	.744	.732	.721	.709	.698	.687	.675	.664	.652
89	1.379	0.798	0.786	0.775	0.763	0.752	0.740	0.729	0.718	0.706	0.695
90	$\Delta e \times \Delta B$	+.0194	+.0198	+.0202	+.0205	+.0209	+.0213	+.0217	+.0221	+.0225	+.0228

RELATIVE HUMIDITY.

TEMPERATURES FAHRENHEIT.

Air Temper-ature.	RELATIVE HUMIDITY, OR PERCENTAGE OF SATURATION.									
	10	20	30	40	50	60	70	80	90	100
F.	Vapor pressure (inches).									
−30°	0.0007	0.0014	0.0021	0.0028	0.0035	0.0042	0.0049	0.0056	0.0063	0.0071
29	.0007	.0015	.0022	.0030	.0037	.0045	.0052	.0060	.0067	.0075
28	.0008	.0016	.0024	.0032	.0040	.0048	.0056	.0064	.0072	.0080
27	.0008	.0017	.0025	.0034	.0042	.0051	.0059	.0068	.0076	.0084
26	.0009	.0018	.0027	.0036	.0045	.0054	.0063	.0072	.0081	.0090
−25	0.0010	0.0019	0.0029	0.0038	0.0048	0.0057	0.0067	0.0076	0.0086	0.0095
24	.0010	.0020	.0030	.0040	.0050	.0060	.0071	.0081	.0091	.0101
23	.0011	.0021	.0032	.0043	.0053	.0064	.0075	.0086	.0096	.0107
22	.0011	.0023	.0034	.0045	.0057	.0068	.0079	.0091	.0102	.0113
21	.0012	.0024	.0036	.0048	.0060	.0072	.0084	.0096	.0108	.0120
−20	0.0013	0.0025	0.0038	0.0051	0.0064	0.0076	0.0089	0.0102	0.0114	0.0127
19	.0013	.0027	.0040	.0054	.0067	.0081	.0094	.0108	.0121	.0135
18	.0014	.0029	.0043	.0057	.0071	.0086	.0100	.0114	.0128	.0143
17	.0015	.0030	.0045	.0060	.0076	.0091	.0106	.0121	.0136	.0151
16	.0016	.0032	.0048	.0064	.0080	.0096	.0112	.0128	.0144	.0160
−15	0.0017	0.0034	0.0051	0.0068	0.0084	0.0101	0.0118	0.0135	0.0152	0.0169
14	.0018	.0036	.0054	.0071	.0089	.0107	.0125	.0143	.0161	.0179
13	.0019	.0038	.0057	.0076	.0094	.0113	.0132	.0151	.0170	.0189
12	.0020	.0040	.0060	.0080	.0100	.0120	.0140	.0160	.0180	.0200
11	.0021	.0042	.0063	.0084	.0106	.0127	.0148	.0169	.0190	.0211
−10	0.0022	0.0045	0.0067	0.0089	0.0112	0.0134	0.0156	0.0178	0.0201	0.0223
9	.0024	.0047	.0071	.0094	.0118	.0141	.0165	.0188	.0212	.0236
8	.0025	.0050	.0075	.0099	.0124	.0149	.0174	.0199	.0224	.0249
7	.0026	.0053	.0079	.0105	.0131	.0158	.0184	.0210	.0236	.0263
6	.0028	.0055	.0083	.0111	.0139	.0166	.0194	.0222	.0249	.0277
− 5	0.0029	0.0058	0.0088	0.0117	0.0146	0.0175	0.0205	0.0234	0.0263	0.0292
4	.0031	.0062	.0093	.0123	.0154	.0185	.0216	.0247	.0278	.0308
3	.0033	.0065	.0098	.0130	.0163	.0195	.0228	.0260	.0293	.0325
2	.0034	.0069	.0103	.0137	.0171	.0206	.0240	.0274	.0309	.0343
1	.0036	.0072	.0108	.0145	.0181	.0217	.0253	.0289	.0325	.0361
±0	0.0038	0.0076	0.0114	0.0152	0.0190	0.0229	0.0267	0.0305	0.0343	0.0381
1	.0040	.0080	.0120	.0161	.0201	.0241	.0281	.0321	.0361	.0401
2	.0042	.0085	.0127	.0169	.0211	.0254	.0296	.0338	.0380	.0423
3	.0044	.0089	.0134	.0178	.0222	.0267	.0312	.0356	.0400	.0445
4	.0047	.0094	.0141	.0187	.0234	.0281	.0328	.0375	.0422	.0468
5	0.0049	0.0099	0.0148	0.0197	0.0247	0.0296	0.0345	0.0394	0.0444	0.0493
6	.0052	.0104	.0156	.0208	.0259	.0311	.0363	.0415	.0467	.0519
7	.0055	.0109	.0164	.0218	.0273	.0328	.0382	.0437	.0491	.0546
8	.0057	.0115	.0172	.0230	.0287	.0344	.0402	.0459	.0517	.0574
9	.0060	.0121	.0181	.0241	.0302	.0362	.0423	.0483	.0543	.0604
10	0.0063	0.0127	0.0190	0.0254	0.0317	0.0381	0.0444	0.0508	0.0571	0.0635
11	.0067	.0133	.0200	.0267	.0334	.0400	.0467	.0534	.0600	.0667
12	.0070	.0140	.0210	.0280	.0350	.0421	.0491	.0561	.0631	.0701
13	.0074	.0147	.0221	.0295	.0368	.0442	.0515	.0589	.0663	.0736
14	.0077	.0155	.0232	.0309	.0387	.0464	.0541	.0619	.0696	.0773
15	0.0081	0.0162	0.0244	0.0325	0.0406	0.0487	0.0568	0.0650	0.0731	0.0812
16	.0085	.0170	.0256	.0341	.0426	.0512	.0597	.0682	.0767	.0852
17	.0089	.0179	.0268	.0358	.0447	.0537	.0626	.0716	.0805	.0895
18	.0094	.0188	.0282	.0376	.0470	.0563	.0657	.0751	.0845	.0939
19	.0099	.0197	.0296	.0394	.0493	.0591	.0690	.0788	.0887	.0985
20	0.0103	0.0207	0.0310	0.0413	0.0517	0.0620	0.0723	0.0827	0.0930	0.1033

RELATIVE HUMIDITY.

TEMPERATURES FAHRENHEIT.

Air Temperature.	RELATIVE HUMIDITY, OR PERCENTAGE OF SATURATION.									
	10	20	30	40	50	60	70	80	90	100
F.	Vapor pressure (inches).									
20°	0.010	0.021	0.031	0.041	0.052	0.062	0.072	0.083	0.093	0.103
21	.011	.022	.033	.043	.054	.065	.076	.087	.098	.108
22	.011	.023	.034	.045	.057	.068	.080	.091	.102	.114
23	.012	.024	.036	.048	.060	.071	.083	.095	.107	.119
24	.012	.025	.037	.050	.062	.075	.087	.100	.112	.125
25	0.013	0.026	0.039	0.052	0.065	0.078	0.092	0.105	0.118	0.131
26	.014	.027	.041	.055	.068	.082	.096	.110	.123	.137
27	.014	.029	.043	.057	.072	.086	.100	.115	.129	.143
28	.015	.030	.045	.060	.075	.090	.105	.120	.135	.150
29	.016	.031	.047	.063	.079	.094	.110	.126	.142	.157
30	0.016	0.033	0.049	0.066	0.082	0.099	0.115	0.132	0.148	0.165
31	.017	.034	.052	.069	.086	.103	.121	.138	.155	.172
32	.018	.036	.054	.072	.090	.108	.126	.144	.162	.180
33	.019	.038	.056	.075	.094	.113	.131	.150	.169	.188
34	.020	.039	.059	.078	.098	.117	.137	.156	.176	.195
35	0.020	0.041	0.061	0.081	0.102	0.122	0.142	0.163	0.183	0.203
36	.021	.042	.064	.085	.106	.127	.148	.169	.191	.212
37	.022	.044	.066	.088	.110	.132	.154	.176	.198	.220
38	.023	.046	.069	.092	.115	.137	.160	.183	.206	.229
39	.024	.048	.071	.095	.119	.143	.167	.191	.214	.238
40	0.025	0.050	0.074	0.099	0.124	0.149	0.173	0.198	0.223	0.248
41	.026	.052	.077	.103	.129	.155	.180	.206	.232	.258
42	.027	.054	.080	.107	.134	.161	.187	.214	.241	.268
43	.028	.056	.083	.111	.139	.167	.195	.223	.250	.278
44	.029	.058	.087	.116	.145	.173	.202	.231	.260	.289
45	0.030	0.060	0.090	0.120	0.150	0.180	0.210	0.240	0.270	0.300
46	.031	.062	.094	.125	.156	.187	.218	.250	.281	.312
47	.032	.065	.097	.130	.162	.194	.227	.259	.292	.324
48	.034	.067	.101	.135	.168	.202	.236	.269	.303	.336
49	.035	.070	.105	.140	.175	.210	.245	.279	.314	.349
50	0.036	0.073	0.109	0.145	0.181	0.218	0.254	0.290	0.326	0.363
51	.038	.075	.113	.151	.188	.226	.263	.301	.339	.376
52	.039	.078	.117	.156	.195	.234	.273	.312	.351	.390
53	.041	.081	.122	.162	.203	.243	.284	.324	.365	.405
54	.042	.084	.126	.168	.210	.252	.294	.336	.378	.420
55	0.044	0.087	0.131	0.174	0.218	0.262	0.305	0.349	0.392	0.436
56	.045	.090	.136	.181	.226	.271	.316	.362	.407	.452
57	.047	.094	.141	.187	.234	.281	.328	.375	.422	.469
58	.049	.097	.146	.194	.243	.292	.340	.389	.437	.486
59	.050	.101	.151	.201	.252	.302	.353	.403	.453	.504
60	0.052	0.104	0.157	0.209	0.261	0.313	0.365	0.418	0.470	0.522
61	.054	.108	.162	.216	.270	.325	.379	.433	.487	.541
62	.056	.112	.168	.224	.280	.336	.392	.448	.504	.560
63	.058	.116	.174	.232	.290	.348	.406	.464	.522	.580
64	.060	.120	.180	.241	.301	.361	.421	.481	.541	.601
65	0.062	0.125	0.187	0.249	0.311	0.374	0.436	0.498	0.560	0.623
66	.064	.129	.193	.258	.322	.387	.451	.516	.580	.645
67	.067	.133	.200	.267	.334	.400	.467	.534	.601	.667
68	.069	.138	.207	.276	.345	.415	.484	.553	.622	.691
69	.072	.143	.214	.286	.358	.429	.500	.572	.644	.715
70	0.074	0.148	0.222	0.296	0.370	0.444	0.518	0.592	0.666	0.740

RELATIVE HUMIDITY.
TEMPERATURES FAHRENHEIT.

Air Temperature.	RELATIVE HUMIDITY, OR PERCENTAGE OF SATURATION.									
	10	20	30	40	50	60	70	80	90	100
F.	Vapor pressure (inches).									
70°	0.074	0.148	0.222	0.296	0.370	0.444	0.518	0.592	0.666	0.740
71	.077	.153	.230	.306	.383	.459	.536	.612	.689	.766
72	.079	.158	.238	.317	.396	.475	.554	.634	.713	.792
73	.082	.164	.246	.328	.410	.491	.573	.655	.737	.819
74	.085	.169	.254	.339	.424	.508	.593	.678	.762	.847
75	0.088	0.175	0.263	0.350	0.438	0.526	0.613	0.701	0.788	0.876
76	.091	.181	.272	.362	.453	.543	.634	.724	.815	.906
77	.094	.187	.281	.374	.468	.562	.655	.749	.843	.936
78	.097	.194	.290	.387	.484	.581	.677	.774	.871	.968
79	.100	.200	.300	.400	.500	.600	.700	.800	.900	1.000
80	0.103	0.207	0.310	0.413	0.517	0.620	0.723	0.827	0.930	1.033
81	.107	.214	.320	.427	.534	.641	.747	.854	.961	1.068
82	.110	.221	.331	.441	.551	.662	.772	.882	.993	1.103
83	.114	.228	.342	.456	.570	.684	.797	.911	1.025	1.139
84	.118	.235	.353	.471	.588	.706	.824	.941	1.059	1.176
85	0.121	0.243	0.364	0.486	0.607	0.729	0.850	0.972	1.093	1.215
86	.125	.251	.376	.502	.627	.753	.878	1.003	1.129	1.254
87	.129	.259	.388	.518	.647	.777	.906	1.036	1.165	1.295
88	.134	.267	.401	.535	.668	.802	.936	1.069	1.203	1.336
89	.138	.276	.414	.552	.690	.828	.966	1.104	1.241	1.379
90	0.142	0.285	0.427	0.569	0.712	0.854	0.996	1.139	1.281	1.423
91	.147	.294	.441	.588	.734	.881	1.028	1.175	1.322	1.469
92	.152	.303	.455	.606	.758	.909	1.061	1.212	1.364	1.515
93	.156	.313	.469	.625	.782	.938	1.094	1.250	1.407	1.563
94	.161	.322	.484	.645	.806	.967	1.128	1.290	1.451	1.612
95	0.166	0.332	0.499	0.665	0.831	0.998	1.164	1.330	1.496	1.662
96	.171	.343	.514	.686	.857	1.029	1.200	1.371	1.543	1.714
97	.177	.353	.530	.707	.884	1.060	1.237	1.414	1.591	1.767
98	.182	.364	.547	.729	.911	1.093	1.275	1.458	1.640	1.822
99	.188	.376	.563	.751	.939	1.127	1.315	1.502	1.690	1.878
100	0.194	0.387	0.581	0.774	0.968	1.161	1.355	1.548	1.742	1.936
101	.199	.399	.598	.798	.997	1.197	1.396	1.596	1.795	1.994
102	.206	.411	.616	.822	1.028	1.233	1.438	1.644	1.850	2.055
103	.212	.423	.635	.847	1.059	1.270	1.482	1.694	1.905	2.117
104	.218	.436	.654	.872	1.090	1.309	1.527	1.745	1.963	2.181
105	0.225	0.449	0.674	0.899	1.123	1.348	1.572	1.797	2.022	2.246
106	.231	.463	.694	.925	1.157	1.388	1.619	1.851	2.082	2.314
107	.238	.476	.715	.953	1.191	1.429	1.668	1.906	2.144	2.382
108	.245	.491	.736	.981	1.226	1.472	1.717	1.962	2.208	2.453
109	.253	.505	.758	1.010	1.263	1.515	1.768	2.020	2.273	2.525
110	0.260	0.520	0.780	1.040	1.300	1.560	1.820	2.080	2.339	2.599
111	.268	.535	.803	1.070	1.338	1.605	1.873	2.140	2.408	2.676
112	.275	.551	.826	1.101	1.377	1.652	1.927	2.203	2.478	2.754
113	.283	.567	.850	1.133	1.417	1.700	1.983	2.267	2.550	2.833
114	.292	.583	.875	1.166	1.458	1.749	2.041	2.332	2.624	2.915
115	0.300	0.600	0.900	1.200	1.500	1.800	2.100	2.399	2.699	2.999
116	.309	.617	.926	1.234	1.543	1.851	2.160	2.468	2.777	3.085
117	.317	.635	.952	1.269	1.587	1.904	2.221	2.539	2.856	3.173
118	.326	.653	.979	1.305	1.632	1.958	2.285	2.611	2.937	3.264
119	.336	.671	1.007	1.342	1.678	2.014	2.349	2.685	3.021	3.356
120	0.345	0.690	1.035	1.380	1.725	2.071	2.416	2.761	3.106	3.451

TABLE 77.

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

METRIC MEASURES.

Values of $e = e' - 0.000660\,B\,(t - t')\,(1 + 0.00115\,t')$

Temperature.	PRESSURE OF AQUEOUS VAPOR, *e*.									
	0	1	2	3	4	5	6	7	8	9
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
−50°	0.029	0.026	0.023	0.020	0.017	0.015	0.013	0.012	0.010	0.009
40	0.096	0.086	0.076	0.068	0.060	0.054	0.048	0.042	0.037	0.033
30	0.288	0.259	0.233	0.209	0.188	0.169	0.151	0.135	0.121	0.108

$$e = e' - 0.000660\,B\,(t - t')\,(1 + 0.00115\,t')$$

$$B = 760 \text{ mm.}$$

t'	$t - t'$										
	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
−30°	$\Delta e \times \Delta B$	+0.006	+0.013	+0.019	+0.025	+0.032	+0.038	+0.045	+0.051	+0.057	+0.064
−30°	0.288	0.239	0.191	0.143	0.094	0.046					
29	.319	.271	.222	.174	.125	.077	0.028				
28	.354	.306	.257	.208	.160	.111	.063	0.014			
27	.392	.344	.295	.246	.198	.149	.101	.052	0.003		
26	.434	.385	.337	.288	.239	.191	.142	.093	.045		
−25	0.480	0.431	0.383	0.334	0.285	0.236	0.188	0.139	0.090	0.042	
24	.530	.482	.433	.384	.335	.286	.238	.189	.140	.091	0.043
23	.585	.537	.488	.439	.390	.341	.292	.244	.195	.146	.097
22	.646	.597	.548	.499	.450	.401	.352	.303	.254	.206	.157
21	.712	.663	.614	.565	.516	.467	.418	.369	.320	.271	.222
−20	0.783	0.734	0.685	0.636	0.587	0.538	0.489	0.440	0.391	0.342	0.293
19	.862	.813	.764	.715	.666	.616	.567	.518	.469	.420	.371
18	.947	.898	.849	.800	.751	.702	.653	.604	.554	.505	.456
17	1.041	.991	.942	.893	.844	.795	.746	.696	.647	.598	.549
16	1.142	1.093	1.044	.994	.945	.896	.847	.797	.748	.699	.650
−15	1.252	1.203	1.154	1.105	1.055	1.006	0.957	0.907	0.858	0.809	0.760
14	1.373	1.323	1.274	1.225	1.175	1.126	1.076	1.027	.978	.928	.879
13	1.503	1.453	1.404	1.355	1.305	1.256	1.206	1.157	1.108	1.058	1.009
12	1.644	1.595	1.545	1.496	1.447	1.397	1.348	1.298	1.249	1.199	1.150
11	1.798	1.748	1.699	1.649	1.600	1.550	1.501	1.451	1.402	1.352	1.303
−10	1.964	1.915	1.865	1.816	1.766	1.716	1.667	1.617	1.568	1.518	1.468
9	2.144	2.095	2.045	1.996	1.946	1.896	1.847	1.797	1.747	1.698	1.648
8	2.340	2.290	2.240	2.190	2.141	2.091	2.041	1.992	1.942	1.892	1.843
7	2.550	2.501	2.451	2.401	2.351	2.302	2.252	2.202	2.152	2.103	2.053
6	2.778	2.729	2.679	2.629	2.579	2.529	2.480	2.430	2.380	2.330	2.280
−5	3.025	2.975	2.925	2.875	2.825	2.775	2.726	2.676	2.626	2.576	2.526
−5	$\Delta e \times \Delta B$	+0.007	+0.013	+0.020	+0.026	+0.033	+0.039	+0.046	+0.052	+0.059	+0.066

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

METRIC MEASURES.

Values of $e = e' - 0.000660\,B\,(t - t')\,(1 + 0.00115\,t')$

$B = 760$ mm.

t'	$t-t'$										
	0.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
−20°	$\Delta e \times \Delta B$	+0.071	+0.077	+0.084	+0.090	+0.097	+0.103	+0.110	+0.116	+0.123	+0.129
−25°	0.480										
24	.530										
23	.585	0.048									
22	.646	.108	0.059	0.010							
21	.712	.173	.124	.075	0.026						
−20	.783	.244	.195	.146	.097	0.048					
19	.862	.322	.273	.224	.175	.126	0.077	0.028			
18	.947	.407	.358	.309	.260	.211	.161	.112	0.063	0.014	
17	1.041	.500	.450	.401	.352	.303	.254	.205	.155	.106	0.057
16	1.142	.600	.551	.502	.453	.404	.354	.305	.256	.207	.157
−15	1.252	.710	.661	.612	.562	.513	.464	.414	.365	.316	.267
14	1.373	.830	.780	.731	.682	.632	.583	.534	.484	.435	.386
13	1.503	.959	.910	.861	.811	.762	.712	.663	.614	.564	.515
12	1.644	1.100	1.051	1.001	.952	.902	.853	.803	.754	.705	.655
11	1.798	1.253	1.204	1.154	1.105	1.055	1.005	.956	.906	.857	.807
−10	+1.964	1.419	1.369	1.320	1.270	1.221	1.171	1.121	1.072	1.022	.973
9	2.144	1.598	1.549	1.499	1.450	1.400	1.350	1.301	1.251	1.201	1.152
8	2.340	1.793	1.743	1.693	1.644	1.594	1.544	1.495	1.445	1.395	1.346
7	2.550	2.003	1.953	1.904	1.854	1.804	1.754	1.705	1.655	1.605	1.555
6	2.778	2.231	2.181	2.131	2.081	2.031	1.981	1.932	1.882	1.832	1.782
−5	3.025	2.476	2.426	2.376	2.327	2.277	2.227	2.177	2.127	2.077	2.027
−5	$\Delta e \times \Delta B$	+0.072	+0.079	+0.085	+0.092	+0.098	+0.105	+0.112	+0.118	+0.125	+0.131

t'	$t-t'$										
	0.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
−15°	$\Delta e \times \Delta B$	+0.136	+0.143	+0.149	+0.156	+0.162	+0.169	+0.175	+0.182	+0.188	+0.195
−17°	1.041	0.008									
16	1.142	0.108	0.059	0.010							
−15	1.252	0.217	.168	.119	0.069	0.020					
14	1.373	.336	.287	.237	.188	.139	0.089	0.040			
13	1.503	.465	.416	.366	.317	.268	.218	.169	0.119	0.070	0.021
12	1.644	.606	.556	.507	.457	.408	.358	.309	.259	.210	.160
11	1.798	.758	.708	.659	.609	.560	.510	.461	.411	.362	.312
−10	1.964	.923	.873	.824	.774	.725	.675	.626	.576	.526	.477
9	2.144	1.102	1.052	1.003	.953	.903	.854	.804	.755	.705	.655
8	2.340	1.296	1.246	1.196	1.147	1.097	1.047	.998	.948	.898	.849
7	2.550	1.506	1.456	1.406	1.356	1.307	1.257	1.207	1.157	1.108	1.058
6	2.778	1.732	1.683	1.633	1.583	1.533	1.483	1.434	1.384	1.334	1.284
−5	3.025	1.977	1.928	1.878	1.828	1.778	1.728	1.678	1.628	1.579	1.529
−5	$\Delta e \times \Delta B$	+0.138	+0.144	+0.151	+0.157	+0.164	+0.171	+0.177	+0.184	+0.190	+0.197

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

METRIC MEASURES.

Values of $e = e' - 0.000660\,B\,(t - t')\,(1 + 0.00115\,t')$

$B = 760$ mm.

t'	$t-t'$									
	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
−10° $\Delta e \times \Delta B$	+0.202	+0.209	+0.215	+0.222	+0.228	+0.235	+0.241	+0.248	+0.254	+0.261
−12°	0.111	0.061	0.012							
11	.263	.213	.164	0.114	0.065	0.015				
−10	.427	.378	.328	.278	.229	.179	0.130	0.080	0.031	
9	.606	.556	.506	.457	.407	.357	.308	.258	.209	0.159
8	.799	.749	.699	.650	.600	.550	.501	.451	.401	.352
7	1.008	.958	909	.859	.809	.759	.710	.660	.610	.560
6	1.234	1.184	1.135	1.085	1.035	.985	.935	.886	.836	.786
−5	1.479	1.429	1.379	1.329	1.279	1.229	1.180	1.130	1.080	1.030
−5 $\Delta e \times \Delta B$	+0.203	+0.210	+0.217	+0.223	+0.230	+0.236	+0.243	+0.249	+0.256	+0.262

t'	$t-t'$									
	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
−8° $\Delta e \times \Delta B$	+0.268	+0.275	+0.281	+0.288	+0.294	+0.301	+0.307	+0.314	+0.320	+0.327
−9°	0.109	0.060	0.010							
8	0.302	0.252	.202	0.153	0.103	0.053	0.004			
7	.510	.461	.411	.361	.311	.262	.212	0.162	0.112	0.063
6	.736	.686	.637	.587	.537	.487	.437	.387	.338	.288
−5	0.980	0.930	0.880	0.830	0.781	0.731	0.681	0.631	0.581	0.531
−5 $\Delta e \times \Delta B$	+0.269	+0.276	+0.282	+0.289	+0.295	+0.302	+0.308	+0.315	+0.322	+0.328

t'	$t-t'$									
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
−7°	0.013									
6	.238	0.188	0.138	0.089	0.039					
−5	0.481	0.431	0.382	0.332	0.282	0.232	0.182	0.132	0.082	0.033
−5 $\Delta e \times \Delta B$	+0.335	+0.341	+0.348	+0.354	+0.361	+0.367	+0.374	+0.381	+0.387	+0.394

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

METRIC MEASURES.

Values of $e = e' - 0.000660\, B\, (t - t')\, (1 + 0.00115\, t')$

$B = 760$ mm.

t'	$t - t'$										
	0	1	2	3	4	5	6	7	8	9	10
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
−5°	$\Delta e \times \Delta B$	+0.07	+0.13	+0.20	+0.26	+0.33	+0.39	+0.46	+0.52	+0.59	+0.66
−5°	3.02	2.53	2.03	1.53	1.03	0.53	0.03				
4	3.29	2.79	2.29	1.79	1.29	0.79	0.29				
3	3.58	3.08	2.58	2.08	1.58	1.08	0.58	0.08			
2	3.89	3.39	2.89	2.39	1.89	1.38	0.88	0.38			
1	4.22	3.72	3.22	2.72	2.22	1.71	1.21	0.71	0.21		
±0	4.58	4.08	3.58	3.08	2.57	2.07	1.57	1.07	0.57	0.07	
+1	4.92	4.42	3.92	3.42	2.92	2.41	1.91	1.41	0.91	0.40	
2	5.29	4.79	4.29	3.78	3.28	2.78	2.27	1.77	1.27	0.77	0.26
3	5.68	5.18	4.68	4.17	3.67	3.17	2.66	2.16	1.66	1.15	0.65
4	6.10	5.59	5.09	4.59	4.08	3.58	3.07	2.57	2.07	1.56	1.06
5	6.54	6.03	5.53	5.03	4.52	4.02	3.51	3.01	2.51	2.00	1.50
6	7.01	6.51	6.00	5.50	4.99	4.49	3.98	3.48	2.97	2.47	1.96
7	7.51	7.01	6.50	6.00	5.49	4.98	4.48	3.97	3.47	2.96	2.46
8	8.05	7.54	7.03	6.53	6.02	5.51	5.01	4.50	4.00	3.49	2.98
9	8.61	8.10	7.60	7.09	6.58	6.08	5.57	5.06	4.56	4.05	3.54
10	9.21	8.70	8.20	7.69	7.18	6.67	6.17	5.66	5.15	4.64	4.14
11	9.85	9.34	8.83	8.32	7.81	7.31	6.80	6.29	5.78	5.27	4.77
12	10.52	10.01	9.50	9.00	8.49	7.98	7.47	6.96	6.45	5.94	5.44
13	11.24	10.73	10.22	9.71	9.20	8.69	8.18	7.67	7.16	6.65	6.14
14	11.99	11.48	10.97	10.46	9.95	9.44	8.93	8.42	7.91	7.41	6.90
15	12.79	12.28	11.77	11.26	10.75	10.24	9.73	9.22	8.71	8.20	7.69
16	13.64	13.13	12.62	12.11	11.60	11.09	10.58	10.07	9.56	9.04	8.53
17	14.54	14.03	13.52	13.00	12.49	11.98	11.47	10.96	10.45	9.94	9.42
18	15.49	14.98	14.46	13.95	13.44	12.93	12.42	11.90	11.39	10.88	10.37
19	16.49	15.98	15.46	14.95	14.44	13.93	13.41	12.90	12.39	11.88	11.36
20	17.55	17.03	16.52	16.01	15.50	14.98	14.47	13.96	13.44	12.93	12.42
21	18.66	18.15	17.64	17.12	16.61	16.10	15.58	15.07	14.56	14.04	13.53
22	19.84	19.33	18.82	18.30	17.79	17.27	16.76	16.24	15.73	15.22	14.70
23	21.09	20.57	20.06	19.54	19.03	18.51	18.00	17.48	16.97	16.45	15.94
24	22.40	21.88	21.37	20.85	20.34	19.82	19.31	18.79	18.27	17.76	17.24
25	23.78	23.26	22.75	22.23	21.72	21.20	20.68	20.17	19.65	19.14	18.62
26	25.24	24.72	24.20	23.69	23.17	22.65	22.14	21.62	21.10	20.59	20.07
27	26.77	26.25	25.73	25.22	24.70	24.18	23.66	23.15	22.63	22.11	21.60
28	28.38	27.86	27.34	26.83	26.31	25.79	25.27	24.76	24.24	23.72	23.20
29	30.08	29.56	29.04	28.52	28.00	27.48	26.97	26.45	25.93	25.41	24.89
30	31.86	31.34	30.82	30.30	29.78	29.27	28.75	28.23	27.71	27.19	26.67
31	33.74	33.22	32.70	32.18	31.66	31.14	30.62	30.10	29.58	29.06	28.54
32	35.70	35.18	34.66	34.14	33.62	33.10	32.58	32.06	31.54	31.02	30.50
33	37.78	37.25	36.73	36.21	35.69	35.17	34.65	34.13	33.61	33.09	32.57
34	39.95	39.43	38.90	38.38	37.86	37.34	36.82	36.30	35.78	35.26	34.73
35	42.23	41.71	41.18	40.66	40.14	39.62	39.10	38.57	38.05	37.53	37.01
36	44.62	44.10	43.57	43.05	42.53	42.01	41.48	40.96	40.44	39.92	39.40
37	47.13	46.60	46.08	45.56	45.04	44.51	43.99	43.47	42.94	42.42	41.90
38	49.76	49.23	48.71	48.19	47.66	47.14	46.61	46.09	45.57	45.04	44.52
39	52.51	51.99	51.46	50.94	50.41	49.89	49.37	48.84	48.32	47.79	47.27
40	55.40	54.87	54.35	53.82	53.30	52.77	52.25	51.72	51.20	50.67	50.15
41	58.42	57.89	57.37	56.84	56.32	55.79	55.27	54.74	54.21	53.69	53.16
42	61.58	61.05	60.53	60.00	59.48	58.95	58.43	57.90	57.37	56.85	56.32
43	64.89	64.36	63.84	63.31	62.78	62.26	61.73	61.20	60.68	60.15	59.62
44	68.35	67.82	67.30	66.77	66.24	65.72	65.19	64.66	64.13	63.61	63.08
45	71.97	71.44	70.91	70.39	69.86	69.33	68.80	68.28	67.75	67.22	66.69
45	$\Delta e \times \Delta B$	+0.07	+0.14	+0.21	+0.28	+0.35	+0.42	+0.49	+0.56	+0.62	+0.69

TABLE 77.

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

METRIC MEASURES.

Values of $e = e' - 0.000660\, B\, (t - t')\, (1 + 0.00115\, t')$

$B = 760$ mm.

t'	$t-t'$ 0	11	12	13	14	15	16	17	18	19	20
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
+5°	$\Delta e \times \Delta B$	+0.73	+0.80	+0.86	+0.93	+1.00	+1.06	+1.13	+1.19	+1.26	+1.33
+3°	5.68	0.15									
4	6.10	0.56	0.05								
5	6.54	0.99	0.49								
6	7.01	1.46	0.95	0.45							
7	7.51	1.95	1.45	0.94	0.43						
8	8.05	2.48	1.97	1.46	0.96	0.45					
9	8.61	3.04	2.53	2.02	1.52	1.01	0.50				
10	9.21	3.63	3.12	2.61	2.11	1.60	1.09	0.58	0.08		
11	9.85	4.26	3.75	3.24	2.73	2.23	1.72	1.21	0.70	0.20	
12	10.52	4.93	4.42	3.91	3.40	2.89	2.38	1.88	1.37	0.86	0.35
13	11.24	5.63	5.13	4.62	4.11	3.60	3.09	2.58	2.07	1.56	1.05
14	11.99	6.39	5.88	5.37	4.86	4.35	3.84	3.33	2.82	2.31	1.80
15	12.79	7.18	6.67	6.16	5.65	5.14	4.63	4.12	3.61	3.10	2.59
16	13.64	8.02	7.51	7.00	6.49	5.98	5.47	4.96	4.45	3.94	3.43
17	14.54	8.91	8.40	7.89	7.38	6.87	6.36	5.85	5.33	4.82	4.31
18	15.49	9.86	9.34	8.83	8.32	7.81	7.30	6.78	6.27	5.76	5.25
19	16.49	10.85	10.34	9.83	9.31	8.80	8.29	7.78	7.26	6.75	6.24
20	17.55	11.90	11.39	10.88	10.36	9.85	9.34	8.82	8.31	7.80	7.29
21	18.66	13.01	12.50	11.99	11.47	10.96	10.45	9.93	9.42	8.90	8.39
22	19.84	14.19	13.67	13.16	12.64	12.13	11.62	11.10	10.59	10.07	9.56
23	21.09	15.42	14.91	14.39	13.88	13.36	12.85	12.33	11.82	11.30	10.79
24	22.40	16.73	16.21	15.70	15.18	14.67	14.15	13.64	13.12	12.60	12.09
25	23.78	18.10	17.59	17.07	16.56	16.04	15.52	15.01	14.49	13.98	13.46
26	25.24	19.55	19.04	18.52	18.00	17.49	16.97	16.45	15.94	15.42	14.90
27	26.77	21.08	20.56	20.04	19.53	19.01	18.49	17.98	17.46	16.94	16.42
28	28.38	22.68	22.17	21.65	21.13	20.61	20.10	19.58	19.06	18.54	18.02
29	30.08	24.37	23.86	23.34	22.82	22.30	21.78	21.26	20.75	20.23	19.71
30	31.86	26.15	25.63	25.11	24.60	24.08	23.56	23.04	22.52	22.00	21.48
31	33.74	28.02	27.50	26.98	26.46	25.94	25.42	24.90	24.38	23.86	23.34
32	35.70	29.98	29.46	28.94	28.42	27.90	27.38	26.86	26.34	25.82	25.30
33	37.78	32.05	31.53	31.01	30.49	29.97	29.44	28.92	28.40	27.88	27.36
34	39.95	34.21	33.69	33.17	32.65	32.13	31.61	31.09	30.57	30.04	29.52
35	42.23	36.49	35.97	35.44	34.92	34.40	33.88	33.36	32.83	32.31	31.79
36	44.62	38.87	38.35	37.83	37.31	36.78	36.26	35.74	35.22	34.69	34.17
37	47.13	41.37	40.85	40.33	39.81	39.28	38.76	38.24	37.71	37.19	36.67
38	49.76	44.00	43.47	42.95	42.43	41.90	41.38	40.86	40.33	39.81	39.29
39	52.51	46.74	46.22	45.70	45.17	44.65	44.12	43.60	43.08	42.55	42.03
40	55.40	49.62	49.10	48.58	48.05	47.53	47.00	46.48	45.95	45.43	44.90
41	58.42	52.64	52.11	51.59	51.06	50.54	50.01	49.49	48.96	48.44	47.91
42	61.58	55.80	55.27	54.74	54.22	53.69	53.17	52.64	52.12	51.59	51.06
43	64.89	59.10	58.57	58.05	57.52	56.99	56.47	55.94	55.41	54.89	54.36
44	68.35	62.55	62.03	61.50	60.97	60.45	59.92	59.39	58.86	58.34	57.81
45	71.97	66.16	65.64	65.11	64.58	64.05	63.53	63.00	62.47	61.94	61.42
45	$\Delta e \times \Delta B$	+0.76	+0.83	+0.90	+0.97	+1.04	+1.11	+1.18	+1.25	+1.32	+1.39

REDUCTION OF PSYCHROMETRIC OBSERVATIONS.

METRIC MEASURES.

Values of $e = e' - 0.000660\ B\ (t - t')\ (1 + 0.00115\ t')$

$B = 760$ mm.

t'	$t - t'$										
	0	21	22	23	24	25	26	27	28	29	30
C.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
+15°	$\Delta e \times \Delta B$	+0.141	+0.148	+0.154	+0.161	+0.168	+0.175	+0.181	+0.188	+0.195	+0.201
13°	11.24	0.54	0.03								
14	11.99	1.29	0.78	0.27							
15	12.79	2.08	1.57	1.06	0.55	0.04					
+16	13.64	2.91	2.40	1.89	1.38	0.87	0.36				
17	14.54	3.80	3.29	2.78	2.27	1.75	1.24	0.73	0.22		
18	15.49	4.74	4.22	3.71	3.20	2.69	2.18	1.66	1.15	0.64	0.13
19	16.49	5.73	5.21	4.70	4.19	3.68	3.16	2.65	2.14	1.62	1.11
20	17.55	6.77	6.26	5.75	5.23	4.72	4.21	3.69	3.18	2.67	2.15
+21	18.66	7.88	7.36	6.85	6.34	5.82	5.31	4.79	4.28	3.77	3.25
22	19.84	9.04	8.53	8.02	7.50	6.99	6.47	5.96	5.44	4.93	4.42
23	21.09	10.27	9.76	9.25	8.73	8.22	7.70	7.19	6.67	6.16	5.64
24	22.40	11.57	11.06	10.54	10.03	9.51	9.00	8.48	7.97	7.45	6.93
25	23.78	12.94	12.43	11.91	11.40	10.88	10.36	9.85	9.33	8.82	8.30
+26	25.24	14.39	13.87	13.35	12.84	12.32	11.80	11.29	10.77	10.25	9.74
27	26.77	15.91	15.39	14.87	14.35	13.84	13.32	12.80	12.29	11.77	11.25
28	28.38	17.51	16.99	16.47	15.95	15.44	14.92	14.40	13.88	13.37	12.85
29	30.08	19.19	18.67	18.15	17.64	17.12	16.60	16.08	15.56	15.04	14.53
30	31.86	20.96	20.44	19.93	19.41	18.89	18.37	17.85	17.33	16.81	16.29
+31	33.74	22.83	22.31	21.79	21.27	20.75	20.23	19.71	19.19	18.67	18.15
32	35.70	24.78	24.26	23.74	23.22	22.70	22.18	21.66	21.14	20.62	20.10
33	37.78	26.84	26.32	25.80	25.28	24.76	24.24	23.72	23.20	22.68	22.16
34	39.95	29.00	28.48	27.96	27.44	26.92	26.40	25.87	25.35	24.83	24.31
35	42.23	31.27	30.75	30.23	29.70	29.18	28.66	28.14	27.62	27.10	26.57
+36	44.62	33.65	33.13	32.60	32.08	31.56	31.04	30.52	29.99	29.47	28.95
37	47.13	36.15	35.62	35.10	34.58	34.05	33.53	33.01	32.48	31.96	31.44
38	49.76	38.76	38.24	37.72	37.19	36.67	36.14	35.62	35.10	34.57	34.05
39	52.51	41.50	40.98	40.46	39.93	39.41	38.88	38.36	37.84	37.31	36.79
40	55.40	44.38	43.85	43.33	42.80	42.28	41.75	41.23	40.71	40.18	39.66
+40	$\Delta e \times \Delta B$	+0.145	+0.152	+0.159	+0.166	+0.173	+0.179	+0.186	+0.193	+0.200	+0.207

t'	$t - t'$										
		31	32	33	34	35	36	37	38	39	40
C.		mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
+20°	$\Delta e \times \Delta B$	+0.209	+0.216	+0.223	+0.230	+0.236	+0.243	+0.250	+0.257	+0.263	+0.270
19°		0.60	0.09								
20		1.64	1.13	0.61	0.10						
21		2.74	2.23	1.71	1.20	0.69	0.17				
22		3.90	3.39	2.87	2.36	1.84	1.33	0.82	0.30		
23		5.13	4.61	4.10	3.58	3.07	2.55	2.04	1.52	1.01	0.49
24		6.42	5.90	5.39	4.87	4.36	3.84	3.33	2.81	2.30	1.78
25		7.78	7.27	6.75	6.24	5.72	5.20	4.69	4.17	3.66	3.14
+26		9.22	8.70	8.19	7.67	7.15	6.64	6.12	5.60	5.09	4.57
27		10.73	10.22	9.70	9.18	8.67	8.15	7.63	7.11	6.60	6.08
28		12.33	11.81	11.29	10.78	10.26	9.74	9.22	8.71	8.19	7.67
29		14.01	13.49	12.97	12.45	11.93	11.42	10.90	10.38	9.86	9.34
30		15.77	15.26	14.74	14.22	13.70	13.18	12.66	12.14	11.62	11.10
+30	$\Delta e \times \Delta B$	+0.212	+0.218	+0.225	+0.232	+0.239	+0.246	+0.253	+0.259	+0.266	+0.273

RELATIVE HUMIDITY.
TEMPERATURE CENTIGRADE.

Air Temperature.	RELATIVE HUMIDITY, OR PERCENTAGE OF SATURATION.									
	10	20	30	40	50	60	70	80	90	100
C.	Vapor pressure (millimeters).									
−45°	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05
44	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.06
43	0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07
42	0.01	0.02	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08
41	0.01	0.02	0.03	0.03	0.04	0.05	0.06	0.07	0.08	0.09
−40	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10
39	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.11
38	0.01	0.02	0.04	0.05	0.06	0.07	0.08	0.10	0.11	0.12
37	0.01	0.03	0.04	0.05	0.07	0.08	0.09	0.11	0.12	0.14
36	0.02	0.03	0.05	0.06	0.08	0.09	0.11	0.12	0.14	0.15
−35	0.02	0.03	0.05	0.07	0.08	0.10	0.12	0.13	0.15	0.17
34	0.02	0.04	0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19
33	0.02	0.04	0.06	0.08	0.10	0.13	0.15	0.17	0.19	0.21
32	0.02	0.05	0.07	0.09	0.12	0.14	0.16	0.19	0.21	0.23
31	0.03	0.05	0.08	0.10	0.13	0.16	0.18	0.21	0.23	0.26
−30	0.03	0.06	0.09	0.12	0.14	0.17	0.20	0.23	0.26	0.29
29	0.03	0.06	0.10	0.13	0.16	0.19	0.22	0.26	0.29	0.32
28	0.04	0.07	0.11	0.14	0.18	0.21	0.25	0.28	0.32	0.35
27	0.04	0.08	0.12	0.16	0.20	0.24	0.27	0.31	0.35	0.39
26	0.04	0.09	0.13	0.17	0.22	0.26	0.30	0.35	0.39	0.43
−25	0.05	0.10	0.14	0.19	0.24	0.29	0.34	0.38	0.43	0.48
24	0.05	0.11	0.16	0.21	0.27	0.32	0.37	0.42	0.48	0.53
23	0.06	0.12	0.18	0.23	0.29	0.35	0.41	0.47	0.53	0.59
22	0.06	0.13	0.19	0.26	0.32	0.39	0.45	0.52	0.58	0.65
21	0.07	0.14	0.21	0.28	0.36	0.43	0.50	0.57	0.64	0.71
−20	0.08	0.16	0.24	0.31	0.39	0.47	0.55	0.63	0.71	0.78
19	0.09	0.17	0.26	0.34	0.43	0.52	0.60	0.69	0.78	0.86
18	0.09	0.19	0.28	0.38	0.47	0.57	0.66	0.76	0.85	0.95
17	0.10	0.21	0.31	0.42	0.52	0.62	0.73	0.83	0.94	1.04
16	0.11	0.23	0.34	0.46	0.57	0.69	0.80	0.91	1.03	1.14
−15	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25
14	0.14	0.27	0.41	0.55	0.69	0.82	0.96	1.10	1.24	1.37
13	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50
12	0.16	0.33	0.49	0.66	0.82	0.99	1.15	1.32	1.48	1.64
11	0.18	0.36	0.54	0.72	0.90	1.08	1.26	1.44	1.62	1.80
−10	0.20	0.39	0.59	0.79	0.98	1.18	1.38	1.57	1.77	1.96
9	0.21	0.43	0.64	0.86	1.07	1.29	1.50	1.72	1.93	2.14
8	0.23	0.47	0.70	0.94	1.17	1.40	1.64	1.87	2.11	2.34
7	0.26	0.51	0.77	1.02	1.28	1.53	1.79	2.04	2.30	2.55
6	0.28	0.56	0.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78
−5	0.30	0.60	0.91	1.21	1.51	1.81	2.12	2.42	2.72	3.02
4	0.33	0.66	0.99	1.32	1.65	1.97	2.30	2.63	2.96	3.29
3	0.36	0.72	1.07	1.43	1.79	2.15	2.50	2.86	3.22	3.58
2	0.39	0.78	1.17	1.55	1.94	2.33	2.72	3.11	3.50	3.89
1	0.42	0.84	1.27	1.69	2.11	2.53	2.95	3.38	3.80	4.22
±0	0.46	0.92	1.37	1.83	2.29	2.75	3.21	3.66	4.12	4.58
+1	0.49	0.98	1.48	1.97	2.46	2.95	3.45	3.94	4.43	4.92
2	0.53	1.06	1.59	2.12	2.65	3.17	3.70	4.23	4.76	5.29
3	0.57	1.14	1.70	2.27	2.84	3.41	3.98	4.55	5.11	5.68
4	0.61	1.22	1.83	2.44	3.05	3.66	4.27	4.88	5.49	6.10
+5	0.65	1.31	1.96	2.62	3.27	3.92	4.58	5.23	5.89	6.54

RELATIVE HUMIDITY.

TEMPERATURE CENTIGRADE.

Air Temperature.	RELATIVE HUMIDITY, OR PERCENTAGE OF SATURATION.									
	10	20	30	40	50	60	70	80	90	100
C.	Vapor pressure (millimeters).									
5°	0.7	1.3	2.0	2.6	3.3	3.9	4.6	5.2	5.9	6.5
6	0.7	1.4	2.1	2.8	3.5	4.2	4.9	5.6	6.3	7.0
7	0.8	1.5	2.3	3.0	3.8	4.5	5.3	6.0	6.8	7.5
8	0.8	1.6	2.4	3.2	4.0	4.8	5.6	6.4	7.2	8.0
9	0.9	1.7	2.6	3.4	4.3	5.2	6.0	6.9	7.7	8.6
10	0.9	1.8	2.8	3.7	4.6	5.5	6.4	7.4	8.3	9.2
11	1.0	2.0	3.0	3.9	4.9	5.9	6.9	7.9	8.9	9.8
12	1.1	2.1	3.2	4.2	5.3	6.3	7.4	8.4	9.5	10.5
13	1.1	2.2	3.4	4.5	5.6	6.7	7.9	9.0	10.1	11.2
14	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12.0
15	1.3	2.6	3.8	5.1	6.4	7.7	9.0	10.2	11.5	12.8
16	1.4	2.7	4.1	5.5	6.8	8.2	9.5	10.9	12.3	13.6
17	1.5	2.9	4.4	5.8	7.3	8.7	10.2	11.6	13.1	14.5
18	1.5	3.1	4.6	6.2	7.7	9.3	10.8	12.4	13.9	15.5
19	1.6	3.3	4.9	6.6	8.2	9.9	11.5	13.2	14.8	16.5
20	1.8	3.5	5.3	7.0	8.8	10.5	12.3	14.0	15.8	17.5
21	1.9	3.7	5.6	7.5	9.3	11.2	13.1	14.9	16.8	18.7
22	2.0	4.0	6.0	7.9	9.9	11.9	13.9	15.9	17.9	19.8
23	2.1	4.2	6.3	8.4	10.5	12.7	14.8	16.9	19.0	21.1
24	2.2	4.5	6.7	9.0	11.2	13.4	15.7	17.9	20.2	22.4
25	2.4	4.8	7.1	9.5	11.9	14.3	16.6	19.0	21.4	23.8
26	2.5	5.0	7.6	10.1	12.6	15.1	17.7	20.2	22.7	25.2
27	2.7	5.4	8.0	10.7	13.4	16.1	18.7	21.4	24.1	26.8
28	2.8	5.7	8.5	11.4	14.2	17.0	19.9	22.7	25.5	28.4
29	3.0	6.0	9.0	12.0	15.0	18.0	21.1	24.1	27.1	30.1
30	3.2	6.4	9.6	12.7	15.9	19.1	22.3	25.5	28.7	31.9
31	3.4	6.7	10.1	13.5	16.9	20.2	23.6	27.0	30.4	33.7
32	3.6	7.1	10.7	14.3	17.9	21.4	25.0	28.6	32.1	35.7
33	3.8	7.6	11.3	15.1	18.9	22.7	26.4	30.2	34.0	37.8
34	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	39.9
35	4.2	8.4	12.7	16.9	21.1	25.3	29.6	33.8	38.0	42.2
36	4.5	8.9	13.4	17.8	22.3	26.8	31.2	35.7	40.2	44.6
37	4.7	9.4	14.1	18.9	23.6	28.3	33.0	37.7	42.4	47.1
38	5.0	10.0	14.9	19.9	24.9	29.9	34.8	39.8	44.8	49.8
39	5.3	10.5	15.8	21.0	26.3	31.5	36.8	42.0	47.3	52.5
40	5.5	11.1	16.6	22.2	27.7	33.2	38.8	44.3	49.9	55.4
41	5.8	11.7	17.5	23.4	29.2	35.1	40.9	46.7	52.6	58.4
42	6.2	12.3	18.5	24.6	30.8	36.9	43.1	49.3	55.4	61.6
43	6.5	13.0	19.5	26.0	32.4	38.9	45.4	51.9	58.4	64.9
44	6.8	13.7	20.5	27.3	34.2	41.0	47.8	54.7	61.5	68.4
45	7.2	14.4	21.6	28.8	36.0	43.2	50.4	57.6	64.8	72.0
46	7.6	15.2	22.7	30.3	37.9	45.5	53.0	60.6	68.2	75.8
47	8.0	15.9	23.9	31.9	39.9	47.8	55.8	63.8	71.7	79.7
48	8.4	16.8	25.1	33.5	41.9	50.3	58.7	67.1	75.4	83.8
49	8.8	17.6	26.4	35.3	44.1	52.9	61.7	70.5	79.3	88.1
50	9.3	18.5	27.8	37.1	46.3	55.6	64.8	74.1	83.4	92.6
51	9.7	19.5	29.2	38.9	48.7	58.4	68.1	77.9	87.6	97.3
52	10.2	20.4	30.7	40.9	51.1	61.3	71.6	81.8	92.0	102.2
53	10.7	21.5	32.2	42.9	53.7	64.4	75.1	85.9	96.6	107.3
54	11.3	22.5	33.8	45.1	56.3	67.6	78.9	90.1	101.4	112.7
55	11.8	23.6	35.5	47.3	59.1	70.9	82.7	94.6	106.4	118.2

TABLE 79.

RATE OF DECREASE OF VAPOR PRESSURE WITH ALTITUDE FOR MOUNTAIN STATIONS.

(According to the empirical formula of Dr. J. Hann.)

$$\frac{e}{e_0} = 10^{-\frac{h}{6200}}$$

e, e_0 = Vapor pressures at an upper and a lower station respectively.
h = Difference of altitude in meters.

Difference of Altitude.		$\frac{e}{e_0}$.	Difference of Altitude.		$\frac{e}{e_0}$.	Difference of Altitude.		$\frac{e}{e_0}$.
Meters.	Feet.		Meters.	Feet.		Meters.	Feet.	
200	656	0.93	1800	5905	0.52	3400	11155	0.29
400	1312	.86	2000	6562	.48	3600	11811	.27
600	1968	.80	2200	7218	.45	3800	12467	.25
800	2625	.75	2400	7874	.42	4000	13123	.23
1000	3281	0.69	2600	8530	0.39	4500	14764	0.19
1200	3937	.64	2800	9186	.36	5000	16404	.16
1400	4593	.60	3000	9842	.33	5500	18045	.13
1600	5249	.56	3200	10499	.31	6000	19685	.11

TABLE 80.

DEPTH OF WATER CORRESPONDING TO THE WEIGHT OF A CYLINDRICAL SNOW CORE 2.655 INCHES IN DIAMETER.

(One-fifth pound equals 1 inch.)

Weight lbs.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
.0	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45
.1	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95
.2	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45
.3	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95
.4	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45
.5	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95
.6	3.00	3.05	3.10	3.15	3.20	3.25	3.30	3.35	3.40	3.45
.7	3.50	3.55	3.60	3.65	3.70	3.75	3.80	3.85	3.90	3.95
.8	4.00	4.05	4.10	4.15	4.20	4.25	4.30	4.35	4.40	4.45
.9	4.50	4.55	4.60	4.65	4.70	4.75	4.80	4.85	4.90	4.95
1.0	5.00	5.05	5.10	5.15	5.20	5.25	5.30	5.35	5.40	5.45
1.1	5.50	5.55	5.60	5.65	5.70	5.75	5.80	5.85	5.90	5.95
1.2	6.00	6.05	6.10	6.15	6.20	6.25	6.30	6.35	6.40	6.45
1.3	6.50	6.55	6.60	6.65	6.70	6.75	6.80	6.85	6.90	6.95
1.4	7.00	7.05	7.10	7.15	7.20	7.25	7.30	7.35	7.40	7.45
1.5	7.50	7.55	7.60	7.65	7.70	7.75	7.80	7.85	7.90	7.95
1.6	8.00	8.05	8.10	8.15	8.20	8.25	8.30	8.35	8.40	8.45
1.7	8.50	8.55	8.60	8.65	8.70	8.75	8.80	8.85	8.90	8.95
1.8	9.00	9.05	9.10	9.15	9.20	9.25	9.30	9.35	9.40	9.45
1.9	9.50	9.55	9.60	9.65	9.70	9.75	9.80	9.85	9.90	9.95
2.0	10.00	10.05	10.10	10.15	10.20	10.25	10.30	10.35	10.40	10.45
2.1	10.50	10.55	10.60	10.65	10.70	10.75	10.80	10.85	10.90	10.95
2.2	11.00	11.05	11.10	11.15	11.20	11.25	11.30	11.35	11.40	11.45
2.3	11.50	11.55	11.60	11.65	11.70	11.75	11.80	11.85	11.90	11.95
2.4	12.00	12.05	12.10	12.15	12.20	12.25	12.30	12.35	12.40	12.45
2.5	12.50	12.55	12.60	12.65	12.70	12.75	12.80	12.85	12.90	12.95
2.6	13.00	13.05	13.10	13.15	13.20	13.25	13.30	13.35	13.40	13.45
2.7	13.50	13.55	13.60	13.65	13.70	13.75	13.80	13.85	13.90	13.95
2.8	14.00	14.05	14.10	14.15	14.20	14.25	14.30	14.35	14.40	14.45
2.9	14.50	14.55	14.60	14.65	14.70	14.75	14.80	14.85	14.90	14.95

Table 81.

DEPTH OF WATER CORRESPONDING TO THE WEIGHT OF SNOW (OR RAIN) COLLECTED IN AN 8-INCH GAGE. (One pound equals 0.5507 inch.)

Weight Pounds.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
.0	.00	.01	.01	.02	.02	.03	.03	.04	.04	.05
.1	.06	.06	.07	.07	.08	.08	.09	.09	.10	.10
.2	.11	.12	.12	.13	.13	.14	.14	.15	.15	.16
.3	.17	.17	.18	.18	.19	.19	.20	.20	.21	.22
.4	.22	.23	.23	.24	.24	.25	.25	.26	.26	.27
.5	.28	.28	.29	.29	.30	.30	.31	.31	.32	.33
.6	.33	.34	.34	.35	.35	.36	.36	.37	.38	.38
.7	.39	.39	.40	.40	.41	.41	.42	.43	.43	.44
.8	.44	.45	.45	.46	.46	.47	.47	.48	.49	.49
.9	.50	.50	.51	.51	.52	.52	.53	.54	.54	.55

Table 82.

QUANTITY OF RAINFALL CORRESPONDING TO GIVEN DEPTHS.

Depth of rainfall, inches.	Cubic inches per acre.	Cubic feet per acre.	Gallons per acre. United States or Queen Anne.	Gallons per acre. Imperial (British).	Tons per acre (2000 pounds). (62° F.)
0.01	62726.4	36.3	271.5	226	1.1
0.02	125453.	72.6	543.	452	2.3
0.03	188179.	108.9	815.	678	3.4
0.04	250905.	145.2	1086.	904	4.5
0.05	313632.	181.5	1358.	1130	5.6
0.06	376358.	217.8	1629.	1356	6.8
0.07	439084.	254.1	1900.	1582	7.9
0.08	501810.	290.4	2171.	1808	9.0
0.09	564536.	326.7	2442.	2034	10.1
0.10	627264.	363.0	2715.	2261	11.3
0.25	1568160.	907.5	6789.	5652	28.
0.50	3136320.	1815.	13577.	11303	56.
0.75	4704480.	2722.	20366.	16955	85.
1.00	6272640.	3630.	27154.	22607	113.
1.25	7840800.	4538.	33943.	28259	141.
1.50	9408960.	5445.	40371.	33911	170.
1.75	10977120.	6352.	47520.	39563	198.
2.00	12545280.	7260.	54309.	45214	226.
2.25	14113440.	8168.	61097.	50866	255.
2.50	15681600.	9075.	67866.	56517	283.
2.75	17249760.	9982.	74674.	62169	311.
3.00	18817920.	10890.	81463.	67821	339.
4.00	25090560.	14520.	108617.	90428	452.
5.00	31363200.	18150	135772.	113035	565.
6.00	37635840.	21780.	162926.	135642	678.

GEODETICAL TABLES.

VALUE OF GRAVITY ON THE EARTH AT SEA LEVEL.

$$g_\phi = 978.039\,(1 + 0.005294\,\sin^2\phi - 0.000007\,\sin^2 2\phi)$$
$$= 980.621\,(1 - 0.002640\,\cos 2\phi + 0.000007\,\cos^2 2\phi)$$

ϕ	g_ϕ	ϕ	g_ϕ	ϕ	g_ϕ	ϕ	g_ϕ	ϕ	g_ϕ
° ′	Dynes.	° ′	Dynes.	° ′	Dynes.	° ′	Dynes.	° ′	Dynes.
0 0	978.039	20 00	978.642	37 00	979.908	54 00	981.422	71 00	982.665
1 0	.041	20	.661	20	.937	20	.450	20	.684
2 0	.045	40	.681	40	.966	40	.479	40	.702
3 0	.053	21 00	.701	38 00	.995	55 00	.507	72 00	.720
4 0	.064	20	.721	20	980.024	20	.535	20	.738
		40	.742	40	.054	40	.564	40	.755
5 00	.078	22 00	.762	39 00	.083	56 00	.592	73 00	.772
20	.084	20	.783	20	.113	20	.620	20	.789
40	.089	40	.805	40	.142	40	.647	40	.805
6 00	.095	23 00	.826	40 00	.172	57 00	.675	74 00	.822
20	.102	20	.848	20	.201	20	.703	20	.837
40	.108	40	.870	40	.231	40	.730	40	.853
7 00	.115	24 00	.892	41 00	.261	58 00	.757	75 00	.868
20	.123	20	.914	20	.291	20	.784	20	.883
40	.131	40	.937	40	.321	40	.811	40	.898
8 00	.139	25 00	.960	42 00	.350	59 00	.838	76 00	.912
20	.147	20	.983	20	.380	20	.865	20	.926
40	.156	40	979.006	40	.410	40	.891	40	.940
9 00	.165	26 00	.030	43 00	.440	60 00	.917	77 00	.953
20	.174	20	.054	20	.471	20	.943	20	.966
40	.184	40	.077	40	.501	40	.969	40	.979
10 00	.194	27 00	.102	44 00	.531	61 00	.995	78 00	.992
20	.205	20	.126	20	.561	20	982.020	20	983.004
40	.215	40	.151	40	.591	40	.046	40	.016
11 00	.227	28 00	.175	45 00	.621	62 00	.071	79 00	.027
20	.238	20	.201	20	.651	20	.096	20	.039
40	.250	40	.226	40	.681	40	.121	40	.049
12 00	.262	29 00	.251	46 00	.711	63 00	.145	80 00	.060
20	.274	20	.277	20	.741	20	.169	20	.070
40	.287	40	.302	40	.772	40	.194	40	.080
13 00	.300	30 00	.328	47 00	.802	64 00	.217	81 00	.090
20	.313	20	.354	20	.832	20	.241	20	.099
40	.327	40	.381	40	.862	40	.265	40	.108
14 00	.341	31 00	.407	48 00	.892	65 00	.288	82 00	.116
20	.355	20	.434	20	.922	20	.311	20	.124
40	.369	40	.460	40	.952	40	.334	40	.132
15 00	.384	32 00	.487	49 00	.981	66 00	.356	83 00	.140
20	.399	20	.515	20	981.011	20	.379	20	.147
40	.415	40	.542	40	.041	40	.401	40	.153
16 00	.430	33 00	.569	50 00	.071	67 00	.423	84 00	.160
20	.447	20	.597	20	.100	20	.445	20	.166
40	.463	40	.624	40	.130	40	.466	40	.172
17 00	.479	34 00	.652	51 00	.160	68 00	.487	85 00	.177
20	.496	20	.680	20	.189	20	.508	20	.182
40	.514	40	.708	40	.218	40	.528	40	.187
18 00	.531	35 00	.736	52 00	.248	69 00	.549		
20	.549	20	.765	20	.277	20	.569	86 00	.192
40	.567	40	.793	40	.306	40	.589	87 00	.203
19 00	.585	36 00	.822	53 00	.335	70 00	.608	88 00	.210
20	.604	20	.850	20	.364	20	.628	89 00	.215
40	978.623	40	979.879	40	981.393	40	982.647	90 00	983.217

RELATIVE ACCELERATION OF GRAVITY AT DIFFERENT LATITUDES.

Ratio of the acceleration of gravity at sea level for each 10′ of latitude, to its acceleration at latitude 45°.

$$\frac{g_\phi}{g_{45}} = 1 - 0.002640 \cos 2\phi + 0.000007 \cos^2 2\phi$$

Latitude. ϕ	0′	10′	20′	30′	40′	50′
0°	0.997367	0.997367	0.997367	0.997367	0.997368	0.997368
1	.997369	.997369	.997370	.997371	.997371	.997372
2	.997373	.997374	.997376	.997377	.997378	.997380
3	.997381	.997383	.997385	.997387	.997388	.997390
4	.997393	.997395	.997397	.997399	.997402	.997404
5	0.997407	0.997410	0.997412	0.997415	0.997418	0.997421
6	.997424	.997428	.997431	.997434	.997438	.997441
7	.997445	.997449	.997453	.997456	.997460	.997465
8	.997469	.997473	.997477	.997482	.997486	.997491
9	.997496	.997500	.997505	.997510	.997515	.997520
10	0.997525	0.997531	0.997536	0.997541	0.997547	0.997553
11	.997558	.997564	.997570	.997576	.997582	.997588
12	.997594	.997600	.997607	.997613	.997620	.997626
13	.997633	.997640	.997646	.997653	.997660	.997667
14	.997674	.997682	.997689	.997696	.997704	.997711
15	0.997719	0.997727	0.997734	0.997742	0.997750	0.997758
16	.997766	.997774	.997783	.997791	.997799	.997808
17	.997816	.997825	.997833	.997842	.997851	.997860
18	.997869	.997878	.997887	.997896	.997905	.997915
19	.997924	.997934	.997943	.997953	.997962	.997972
20	0.997982	0.997992	0.998002	0.998012	0.998022	0.998032
21	.998042	.998052	.998063	.998073	.998084	.998094
22	.998104	.998115	.998126	.998137	.998148	.998159
23	.998170	.998181	.998192	.998203	.998214	.998225
24	.998237	.998248	.998260	.998271	.998283	.998294
25	0.998306	0.998318	0.998330	0.998341	0.998353	0.998365
26	.998377	.998389	.998402	.998414	.998426	.998438
27	.998451	.998463	.998476	.998488	.998501	.998513
28	.998526	.998539	.998551	.998564	.998577	.998590
29	.998603	.998616	.998629	.998642	.998655	.998669
30	0.998682	0.998695	0.998708	0.998722	0.998735	0.998749
31	.998762	.998776	.998789	.998803	.998817	.998830
32	.998844	.998858	.998872	.998886	.998899	.998913
33	.998927	.998941	.998956	.998970	.998984	.998998
34	.999012	.999026	.999041	.999055	.999069	.999084
35	0.999098	0.999112	0.999127	0.999141	0.999156	0.999170
36	.999185	.999199	.999214	.999229	.999243	.999258
37	.999273	.999288	.999302	.999317	.999332	.999347
38	.999362	.999377	.999392	.999406	.999421	.999436
39	.999451	.999466	.999482	.999497	.999512	.999527
40	0.999542	0.999557	0.999572	0.999587	0.999602	0.999618
41	.999633	.999648	.999663	.999678	.999694	.999709
42	.999724	.999739	.999755	.999770	.999785	.999801
43	.999816	.999831	.999847	.999862	.999877	.999893
44	.999908	.999923	.999939	.999954	.999969	.999985
45	1.000000	1.000015	1.000031	1.000046	1.000061	1.000077

TABLE 84.

RELATIVE ACCELERATION OF GRAVITY AT DIFFERENT LATITUDES.

Ratio of the acceleration of gravity at sea level for each 10′ of latitude, to its acceleration at latitude 45°.

$$\frac{g_\phi}{g_{45}} = 1 - 0.002640 \cos 2\phi + 0.000007 \cos^2 2\phi$$

Latitude. ϕ	0′	10′	20′	30′	40′	50′
45	1.000000	1.000015	1.000031	1.000046	1.000061	1.000077
46	092	108	123	138	153	169
47	184	200	215	230	246	261
48	276	291	307	322	337	352
49	368	383	398	413	428	444
50	1.000459	1.000474	1.000489	1.000504	1.000519	1.000534
51	549	564	579	594	609	624
52	639	654	669	684	699	713
53	728	743	758	773	787	802
54	816	831	846	860	875	889
55	1.000904	1.000918	1.000933	1.000947	1.000961	1.000976
56	0990	1004	1018	1033	1047	1061
57	1075	1089	1103	1117	1131	1145
58	1159	1173	1186	1200	1214	1227
59	1241	1255	1268	1282	1295	1308
60	1.001322	1.001335	1.001348	1.001362	1.001375	1.001388
61	1401	1414	1427	1440	1453	1466
62	1478	1491	1504	1517	1529	1542
63	1554	1567	1579	1591	1604	1616
64	1628	1640	1652	1664	1676	1688
65	1.001700	1.001712	1.001723	1.001735	1.001747	1.001758
66	1770	1781	1792	1804	1815	1826
67	1837	1848	1859	1870	1881	1892
68	1903	1913	1924	1935	1945	1955
69	1966	1976	1986	1996	2007	2017
70	1.002026	1.002036	1.002046	1.002056	1.002066	1.002075
71	2085	2094	2104	2113	2122	2131
72	2140	2149	2158	2167	2176	2185
73	2194	2202	2211	2219	2227	2236
74	2244	2252	2260	2268	2276	2284
75	1.002292	1.002299	1.002307	1.002314	1.002322	1.002329
76	2336	2344	2351	2358	2365	2372
77	2378	2385	2392	2398	2405	2411
78	2418	2424	2430	2436	2442	2448
79	2454	2460	2465	2471	2476	2482
80	1.002487	1.002492	1.002497	1.002502	1.002507	1.002512
81	2517	2522	2527	2531	2536	2540
82	2544	2548	2553	2557	2561	2564
83	2568	2572	2576	2579	2582	2586
84	2589	2592	2595	2598	2601	2604
85	1.002607	1.002609	1.002612	1.002614	1.002617	1.002619
86	2621	2623	2625	2627	2629	2631
87	2632	2634	2636	2637	2638	2639
88	2641	2642	2643	2643	2644	2645
89	2645	2646	2646	2647	2647	2647
90	1.002647					

LENGTH OF ONE DEGREE OF THE MERIDIAN AT DIFFERENT LATITUDES.

Latitude.	Meters.	Statute Miles.	Geographic Miles. 1′ of the Eq.	Latitude.	Meters.	Statute Miles.	Geographic Miles. 1′ of the Eq.
0°	110 568.5	68.703	59.594	45°	111 132.1	69.054	59.898
1	110 568.8	68.704	59.594	46	111 151.9	69.067	59.908
2	110 569.8	68.705	59.595	47	111 171.6	69.079	59.919
3	110 571.5	68.706	59.596	48	111 191.3	69.091	59.929
4	110 573.9	68.707	59.597	49	111 210.9	69.103	59.940
5	110 577.0	68.709	59.598	50	111 230.5	69.115	59.951
6	110 580.7	68.711	59.600	51	111 249.9	69.127	59.961
7	110 585.1	68.714	59.603	52	111 269.2	69.139	59.972
8	110 590.2	68.717	59.606	53	111 288.3	69.151	59.982
9	110 595.9	68.721	59.609	54	111 307.3	69.163	59.992
10	110 602.3	68.725	59.612	55	111 326.0	69.175	60.002
11	110 609.3	68.729	59.616	56	111 344.5	69.186	60.012
12	110 617.0	68.734	59.620	57	111 362.7	69.198	60.022
13	110 625.3	68.739	59.625	58	111 380.7	69.209	60.032
14	110 634.2	68.745	59.629	59	111 398.4	69.220	60.041
15	110 643.7	68.751	59.634	60	111 415.7	69.230	60.051
16	110 653.8	68.757	59.640	61	111 432.7	69.241	60.060
17	110 664.5	68.763	59.646	62	111 449.4	69.251	60.069
18	110 675.7	68.770	59.652	63	111 465.7	69.261	60.077
19	110 687.5	68.778	59.658	64	111 481.5	69.271	60.086
20	110 699.9	68.786	59.665	65	111 497.0	69.281	60.094
21	110 712.8	68.794	59.672	66	111 512.0	69.290	60.102
22	110 726.2	68.802	59.679	67	111 526.5	69.299	60.110
23	110 740.1	68.810	59.686	68	111 540.5	69.308	60.118
24	110 754.4	68.819	59.694	69	111 554.1	69.316	60.125
25	110 769.2	68.829	59.702	70	111 567.1	69.324	60.132
26	110 784.5	68.838	59.710	71	111 579.7	69.332	60.139
27	110 800.2	68.848	59.719	72	111 591.6	69.340	60.145
28	110 816.3	68.858	59.727	73	111 603.0	69.347	60.151
29	110 832.8	68.868	59.736	74	111 613.9	69.354	60.157
30	110 849.7	68.879	59.745	75	111 624.1	69.360	60.163
31	110 866.9	68.889	59.755	76	111 633.8	69.366	60.168
32	110 884.4	68.900	59.764	77	111 642.8	69.372	60.173
33	110 902.3	68.911	59.774	78	111 651.2	69.377	60.177
34	110 920.4	68.923	59.784	79	111 659.0	69.382	60.182
35	110 938.8	68.934	59.794	80	111 666.2	69.386	60.186
36	110 957.4	68.946	59.804	81	111 672.6	69.390	60.189
37	110 976.3	68.957	59.814	82	111 678.5	69.394	60.192
38	110 995.3	68.969	59.824	83	111 683.6	69.397	60.195
39	111 014.5	68.981	59.834	84	111 688.1	69.400	60.197
40	111 033.9	68.993	59.845	85	111 691.9	69.402	60.199
41	111 053.4	69.005	59.855	86	111 695.0	69.404	60.201
42	111 073.0	69.017	59.866	87	111 697.4	69.405	60.202
43	111 092.6	69.029	59.876	88	111 699.2	69.407	60.203
44	111 112.4	69.042	59.887	89	111 700.2	69.407	60.204
45	111 132.1	69.054	59.898	90	111 700.6	69.407	60.204

LENGTH OF ONE DEGREE OF THE PARALLEL AT DIFFERENT LATITUDES.

Latitude.	Meters.	Statute Miles.	Geographic Miles. 1′ of the Eq.	Latitude.	Meters.	Statute Miles.	Geographic Miles. 1′ of the Eq.
0°	111 321.9	69.171	60.000	45°	78 850.0	48.995	42.498
1	111 305.2	69.162	59.991	46	77 466.5	48.135	41.753
2	111 254.6	69.130	59.964	47	76 059.2	47.261	40.994
3	111 170.4	69.078	59.918	48	74 628.5	46.372	40.223
4	111 052.6	69.005	59.855	49	73 174.9	45.469	39.440
5	110 901.2	68.911	59.773	50	71 698.9	44.552	38.644
6	110 716.2	68.796	59.673	51	70 200.8	43.621	37.837
7	110 497.7	68.660	59.556	52	68 681.1	42.676	37.018
8	110 245.8	68.503	59.420	53	67 140.3	41.719	36.187
9	109 960.5	68.326	59.266	54	65 578.8	40.749	35.346
10	109 641.9	68.128	59.095	55	63 997.1	39.766	34.493
11	109 290.1	67.909	58.905	56	62 395.7	38.771	33.630
12	108 905.2	67.670	58.697	57	60 775.1	37.764	32.757
13	108 487.3	67.411	58.472	58	59 135.7	36.745	31.873
14	108 036.6	67.131	58.229	59	57 478.1	35.715	30.979
15	107 553.1	66.830	57.969	60	55 802.8	34.674	30.076
16	107 037.0	66.510	57.690	61	54 110.2	33.622	29.164
17	106 488.5	66.169	57.395	62	52 400.9	32.560	28.243
18	105 907.7	65.808	57.082	63	50 675.4	31.488	27.313
19	105 294.7	65.427	56.751	64	48 934.3	30.406	26.374
20	104 649.8	65.026	56.404	65	47 178.0	29.315	25.428
21	103 973.2	64.606	56.039	66	45 407.1	28.215	24.473
22	103 265.0	64.166	55.657	67	43 622.2	27.106	23.511
23	102 525.4	63.706	55.259	68	41 823.8	25.988	22.542
24	101 754.6	63.227	54.843	69	40 012.4	24.862	21.566
25	100 953.0	62.729	54.411	70	38 188.6	23.729	20.583
26	100 120.6	62.212	53.963	71	36 353.0	22.589	19.593
27	99 257.8	61.676	53.498	72	34 506.2	21.441	18.598
28	98 364.8	61.121	53.016	73	32 648.6	20.287	17.597
29	97 441.9	60.548	52.519	74	30 780.9	19.126	16.590
30	96 489.3	59.956	52.006	75	28 903.6	17.960	15.578
31	95 507.3	59.345	51.476	76	27 017.4	16.788	14.562
32	94 496.2	58.717	50.931	77	25 122.8	15.611	13.541
33	93 456.3	58.071	50.371	78	23 220.4	14.428	12.515
34	92 387.9	57.407	49.795	79	21 310.8	13.242	11.486
35	91 291.3	56.726	49.204	80	19 394.6	12.051	10.453
36	90 166.8	56.027	48.598	81	17 472.4	10.857	9.417
37	89 014.8	55.311	47.977	82	15 544.7	9.659	8.378
38	87 835.6	54.578	47.341	83	13 612.2	8.458	7.337
39	86 629.6	53.829	46.691	84	11 675.5	7.255	6.293
40	85 397.0	53.063	46.027	85	9 735.1	6.049	5.247
41	84 138.4	52.281	45.349	86	7 791.7	4.841	4.200
42	82 854.0	51.483	44.656	87	5 845.9	3.632	3.151
43	81 544.2	50.669	43.950	88	3 898.3	2.422	2.101
44	80 209.4	49.840	43.231	89	1 949.4	1.211	1.051
45	78 850.0	48.995	42.498	90	0.0	0.000	0.000

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.								
	0°	5°	10°	15°	20°	25°	30°	35°	40°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
−23° 27′	12 7	11 50	11 32	11 14	10 55	10 35	10 13	9 48	9 19
−23 20	12 7	11 50	11 32	11 14	10 56	10 36	10 14	9 49	9 20
−23 0	12 7	11 50	11 33	11 15	10 57	10 37	10 15	9 51	9 23
−22 40	12 7	11 50	11 33	11 16	10 58	10 38	10 17	9 53	9 26
−22 20	12 7	11 51	11 34	11 17	10 59	10 40	10 19	9 55	9 29
−22 0	12 7	11 51	11 34	11 18	11 0	10 41	10 20	9 58	9 31
−21 40	12 7	11 51	11 35	11 19	11 1	10 43	10 22	10 0	9 34
−21 20	12 7	11 52	11 35	11 19	11 2	10 44	10 24	10 2	9 37
−21 0	12 7	11 52	11 36	11 20	11 4	10 46	10 26	10 4	9 40
−20 40	12 7	11 52	11 37	11 21	11 5	10 47	10 28	10 6	9 42
−20 20	12 7	11 52	11 37	11 22	11 6	10 49	10 29	10 8	9 45
−20 0	12 7	11 53	11 38	11 23	11 7	10 50	10 31	10 11	9 47
−19 40	12 7	11 53	11 38	11 23	11 8	10 51	10 33	10 13	9 50
−19 20	12 7	11 53	11 39	11 24	11 9	10 53	10 35	10 15	9 53
−19 0	12 7	11 53	11 39	11 25	11 10	10 54	10 37	10 17	9 55
−18 40	12 7	11 54	11 40	11 26	11 11	10 55	10 38	10 19	9 58
−18 20	12 7	11 54	11 40	11 27	11 12	10 57	10 40	10 21	10 1
−18 0	12 7	11 54	11 41	11 28	11 13	10 58	10 42	10 23	10 3
−17 40	12 7	11 54	11 41	11 28	11 14	10 59	10 43	10 26	10 5
−17 20	12 7	11 55	11 42	11 29	11 15	11 1	10 45	10 28	10 8
−17 0	12 7	11 55	11 42	11 30	11 16	11 2	10 47	10 30	10 10
−16 40	12 7	11 55	11 43	11 31	11 17	11 4	10 49	10 32	10 13
−16 20	12 7	11 55	11 43	11 31	11 18	11 5	10 50	10 34	10 16
−16 0	12 7	11 56	11 44	11 32	11 19	11 6	10 52	10 36	10 18
−15 40	12 7	11 56	11 44	11 33	11 20	11 8	10 53	10 38	10 20
−15 20	12 7	11 56	11 45	11 34	11 21	11 9	10 55	10 40	10 23
−15 0	12 7	11 56	11 45	11 34	11 22	11 10	10 57	10 42	10 25
−14 40	12 7	11 57	11 46	11 35	11 23	11 11	10 59	10 44	10 28
−14 20	12 7	11 57	11 46	11 36	11 25	11 13	11 0	10 46	10 30
−14 0	12 7	11 57	11 47	11 37	11 26	11 14	11 2	10 48	10 32
−13 40	12 7	11 57	11 47	11 37	11 27	11 16	11 4	10 50	10 35
−13 20	12 7	11 58	11 48	11 38	11 28	11 17	11 5	10 52	10 37
−13 0	12 7	11 58	11 48	11 39	11 29	11 18	11 7	10 54	10 40
−12 40	12 7	11 58	11 49	11 40	11 30	11 19	11 8	10 56	10 42
−12 20	12 7	11 58	11 49	11 40	11 31	11 21	11 10	10 58	10 44
−12 0	12 7	11 58	11 50	11 41	11 32	11 22	11 11	11 0	10 47
−11 40	12 7	11 59	11 50	11 42	11 33	11 23	11 13	11 2	10 49
−11 20	12 7	11 59	11 51	11 43	11 34	11 25	11 15	11 4	10 52
−11 0	12 7	11 59	11 51	11 43	11 35	11 26	11 16	11 6	10 54
−10 40	12 7	11 59	11 52	11 44	11 36	11 27	11 18	11 8	10 56
−10 20	12 7	12 0	11 52	11 45	11 37	11 28	11 20	11 10	10 59
−10 0	12 7	12 0	11 53	11 46	11 38	11 30	11 21	11 12	11 1
− 9 40	12 7	12 0	11 53	11 46	11 39	11 31	11 23	11 14	11 3
− 9 20	12 7	12 0	11 54	11 47	11 40	11 32	11 24	11 16	11 5
− 9 0	12 7	12 1	11 54	11 47	11 41	11 34	11 26	11 17	11 8
− 8 40	12 7	12 1	11 55	11 48	11 42	11 35	11 28	11 19	11 10
− 8 20	12 7	12 1	11 55	11 49	11 43	11 36	11 29	11 21	11 12
− 8 0	12 7	12 1	11 56	11 50	11 44	11 37	11 31	11 23	11 14

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.									
	42°	44°	46°	48°	50°	52°	54°	56°	58°	60°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
−23° 27′	9 7	8 53	8 38	8 22	8 4	7 44	7 22	6 56	6 27	5 52
−23 20	9 8	8 54	8 39	8 23	8 5	7 45	7 24	6 58	6 29	5 54
−23 0	9 11	8 58	8 43	8 28	8 10	7 50	7 29	7 4	6 36	6 2
−22 40	9 14	9 1	8 46	8 31	8 14	7 55	7 34	7 10	6 43	6 9
−22 20	9 17	9 4	8 50	8 35	8 18	8 0	7 39	7 16	6 49	6 17
−22 0	9 20	9 7	8 53	8 38	8 22	8 4	7 44	7 22	6 55	6 25
−21 40	9 23	9 10	8 57	8 42	8 26	8 9	7 49	7 27	7 1	6 32
−21 20	9 26	9 13	9 1	8 46	8 30	8 13	7 54	7 32	7 8	6 38
−21 0	9 28	9 17	9 4	8 50	8 34	8 18	7 59	7 38	7 14	6 46
−20 40	9 31	9 20	9 7	8 53	8 38	8 22	8 4	7 43	7 20	6 52
−20 20	9 34	9 23	9 11	8 57	8 42	8 26	8 8	7 49	7 25	6 59
−20 0	9 37	9 26	9 14	9 1	8 46	8 31	8 13	7 54	7 31	7 5
−19 40	9 40	9 29	9 17	9 4	8 50	8 35	8 18	7 59	7 37	7 12
−19 20	9 43	9 32	9 20	9 7	8 54	8 39	8 23	8 4	7 43	7 18
−19 0	9 46	9 35	9 24	9 11	8 58	8 43	8 27	8 9	7 48	7 25
−18 40	9 48	9 38	9 27	9 15	9 2	8 47	8 32	8 14	7 54	7 31
−18 20	9 51	9 41	9 30	9 19	9 6	8 52	8 36	8 19	7 59	7 37
−18 0	9 54	9 44	9 34	9 22	9 10	8 56	8 41	8 24	8 5	7 43
−17 40	9 56	9 47	9 37	9 25	9 13	9 0	8 45	8 29	8 10	7 49
−17 20	9 59	9 50	9 40	9 29	9 17	9 4	8 50	8 34	8 15	7 55
−17 0	10 2	9 53	9 43	9 32	9 21	9 8	8 54	8 38	8 20	8 1
−16 40	10 5	9 56	9 46	9 35	9 25	9 12	8 58	8 43	8 26	8 6
−16 20	10 7	9 59	9 49	9 39	9 28	9 16	9 2	8 47	8 31	8 12
−16 0	10 10	10 1	9 52	9 43	9 32	9 20	9 7	8 52	8 36	8 17
−15 40	10 12	10 4	9 55	9 46	9 35	9 24	9 11	8 57	8 41	8 23
−15 20	10 15	10 7	9 58	9 49	9 39	9 28	9 15	9 2	8 46	8 29
−15 0	10 18	10 10	10 1	9 52	9 43	9 31	9 19	9 6	8 51	8 34
−14 40	10 20	10 13	10 4	9 56	9 46	9 35	9 23	9 11	8 56	8 40
−14 20	10 23	10 16	10 7	9 59	9 49	9 39	9 28	9 15	9 1	8 45
−14 0	10 26	10 19	10 10	10 2	9 53	9 43	9 32	9 19	9 6	8 50
−13 40	10 28	10 21	10 13	10 5	9 56	9 47	9 36	9 24	9 11	8 56
−13 20	10 31	10 24	10 16	10 8	10 0	9 50	9 40	9 28	9 16	9 1
−13 0	10 33	10 26	10 19	10 11	10 3	9 54	9 44	9 33	9 20	9 6
−12 40	10 36	10 29	10 22	10 15	10 7	9 58	9 48	9 37	9 25	9 11
−12 20	10 38	10 32	10 25	10 18	10 10	10 1	9 52	9 41	9 30	9 17
−12 0	10 41	10 35	10 28	10 21	10 13	10 5	9 56	9 46	9 35	9 22
−11 40	10 44	10 38	10 31	10 25	10 17	10 9	10 0	9 50	9 39	9 27
−11 20	10 46	10 40	10 34	10 28	10 20	10 13	10 4	9 55	9 44	9 32
−11 0	10 49	10 43	10 37	10 31	10 23	10 16	10 8	9 59	9 49	9 37
−10 40	10 51	10 46	10 40	10 34	10 27	10 19	10 12	10 3	9 53	9 42
−10 20	10 53	10 49	10 43	10 37	10 31	10 23	10 16	10 7	9 58	9 47
−10 0	10 56	10 51	10 46	10 40	10 34	10 27	10 19	10 11	10 3	9 52
− 9 40	10 59	10 54	10 49	10 43	10 37	10 31	10 23	10 16	10 7	9 57
− 9 20	11 1	10 56	10 52	10 46	10 40	10 34	10 27	10 20	10 11	10 2
− 9 0	11 3	10 59	10 55	10 49	10 44	10 37	10 31	10 24	10 16	10 7
− 8 40	11 6	11 2	10 57	10 52	10 47	10 41	10 34	10 28	10 20	10 11
− 8 20	11 8	11 4	11 0	10 55	10 50	10 44	10 38	10 32	10 25	10 16
− 8 0	11 10	11 7	11 3	10 58	10 53	10 48	10 42	10 36	10 29	10 21

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.								
	0°	5°	10°	15°	20°	25°	30°	35°	40°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
−8° 0′	12 7	12 1	11 55	11 50	11 44	11 37	11 31	11 23	11 14
−7 40	12 7	12 1	11 56	11 50	11 45	11 38	11 32	11 25	11 17
−7 20	12 7	12 1	11 56	11 51	11 46	11 40	11 34	11 27	11 19
−7 0	12 7	12 2	11 57	11 52	11 47	11 41	11 35	11 29	11 22
−6 40	12 7	12 2	11 57	11 53	11 48	11 42	11 37	11 31	11 24
−6 20	12 7	12 2	11 58	11 53	11 49	11 43	11 38	11 32	11 26
−6 0	12 7	12 2	11 58	11 54	11 50	11 45	11 40	11 34	11 28
−5 40	12 7	12 3	11 59	11 55	11 51	11 46	11 41	11 36	11 31
−5 20	12 7	12 3	11 59	11 55	11 52	11 47	11 43	11 38	11 33
−5 0	12 7	12 3	12 0	11 56	11 53	11 49	11 44	11 40	11 35
−4 40	12 7	12 3	12 0	11 57	11 54	11 50	11 46	11 42	11 37
−4 20	12 7	12 4	12 1	11 58	11 55	11 51	11 47	11 44	11 40
−4 0	12 7	12 4	12 1	11 58	11 56	11 52	11 49	11 46	11 42
−3 40	12 7	12 4	12 2	11 59	11 57	11 53	11 51	11 47	11 44
−3 20	12 7	12 4	12 2	12 0	11 58	11 55	11 52	11 49	11 46
−3 0	12 7	12 5	12 3	12 1	11 58	11 56	11 54	11 51	11 49
−2 40	12 7	12 5	12 3	12 1	11 59	11 58	11 55	11 53	11 51
−2 20	12 7	12 5	12 4	12 2	12 0	11 59	11 57	11 55	11 53
−2 0	12 7	12 5	12 4	12 3	12 1	12 0	11 58	11 57	11 55
−1 40	12 7	12 5	12 4	12 4	12 2	12 1	12 0	11 59	11 58
−1 20	12 7	12 6	12 5	12 4	12 3	12 2	12 2	12 1	12 0
−1 0	12 7	12 6	12 5	12 5	12 4	12 4	12 3	12 2	12 2
−0 40	12 7	12 6	12 6	12 5	12 5	12 5	12 5	12 4	12 4
−0 20	12 7	12 6	12 6	12 6	12 6	12 6	12 6	12 6	12 7
0 0	12 7	12 7	12 7	12 7	12 7	12 7	12 8	12 8	12 9
+0 20	12 7	12 7	12 7	12 8	12 8	12 8	12 9	12 10	12 11
0 40	12 7	12 7	12 8	12 8	12 9	12 10	12 11	12 12	12 13
1 0	12 7	12 7	12 8	12 9	12 10	12 11	12 13	12 14	12 15
1 20	12 7	12 8	12 9	12 10	12 11	12 13	12 14	12 16	12 17
1 40	12 7	12 8	12 9	12 10	12 12	12 14	12 16	12 17	12 20
2 0	12 7	12 8	12 10	12 11	12 13	12 15	12 17	12 19	12 22
2 20	12 7	12 8	12 10	12 12	12 14	12 16	12 19	12 21	12 25
2 40	12 7	12 9	12 11	12 13	12 15	12 17	12 20	12 23	12 27
3 0	12 7	12 9	12 11	12 13	12 16	12 19	12 22	12 25	12 29
3 20	12 7	12 9	12 12	12 14	12 17	12 20	12 23	12 27	12 31
3 40	12 7	12 9	12 12	12 15	12 18	12 21	12 25	12 29	12 33
4 0	12 7	12 10	12 13	12 16	12 19	12 22	12 26	12 31	12 35
4 20	12 7	12 10	12 13	12 16	12 20	12 23	12 28	12 32	12 38
4 40	12 7	12 10	12 14	12 17	12 21	12 25	12 29	12 34	12 40
5 0	12 7	12 10	12 14	12 18	12 22	12 26	12 31	12 36	12 43
5 20	12 7	12 10	12 15	12 19	12 23	12 28	12 32	12 38	12 45
5 40	12 7	12 11	12 15	12 19	12 24	12 29	12 34	12 40	12 47
6 0	12 7	12 11	12 16	12 20	12 25	12 30	12 35	12 42	12 49
6 20	12 7	12 11	12 16	12 21	12 26	12 31	12 37	12 44	12 52
6 40	12 7	12 11	12 16	12 22	12 27	12 32	12 39	12 46	12 54
7 0	12 7	12 12	12 17	12 22	12 28	12 34	12 40	12 48	12 56
7 20	12 7	12 12	12 17	12 23	12 29	12 35	12 42	12 50	12 58
7 40	12 7	12 12	12 18	12 23	12 30	12 36	12 43	12 52	13 1
8 0	12 7	12 13	12 18	12 24	12 31	12 38	12 45	12 53	13 3

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.									
	42°	44°	46°	48°	50°	52°	54°	56°	53°	60°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
−8° 0′	11 11	11 7	11 3	11 58	10 53	10 48	10 43	10 36	10 30	10 21
−7 40	11 13	11 10	11 5	11 1	10 57	10 52	10 46	10 40	10 34	10 26
−7 20	11 16	11 12	11 8	11 4	11 0	10 55	10 50	10 44	10 38	10 31
−7 0	11 19	11 15	11 11	11 7	11 3	10 59	10 54	10 48	10 42	10 35
−6 40	11 21	11 17	11 14	11 10	11 7	11 2	10 58	10 52	10 47	10 40
−6 20	11 23	11 20	11 17	11 13	11 10	11 5	11 1	10 56	10 51	10 45
−6 0	11 26	11 23	11 20	11 16	11 13	11 9	11 5	11 0	10 55	10 50
−5 40	11 28	11 25	11 23	11 19	11 16	11 13	11 8	11 4	10 59	10 55
−5 20	11 31	11 28	11 25	11 22	11 19	11 16	11 13	11 8	11 4	10 59
−5 0	11 33	11 31	11 28	11 25	11 23	11 19	11 16	11 12	11 8	11 4
−4 40	11 35	11 33	11 31	11 28	11 26	11 23	11 20	11 16	11 13	11 8
−4 20	11 38	11 36	11 34	11 31	11 29	11 26	11 23	11 20	11 17	11 13
−4 0	11 40	11 38	11 37	11 34	11 32	11 30	11 27	11 24	11 21	11 18
−3 40	11 43	11 41	11 39	11 37	11 35	11 33	11 31	11 28	11 26	11 22
−3 20	11 45	11 43	11 42	11 40	11 38	11 37	11 35	11 32	11 30	11 27
−3 0	11 47	11 46	11 45	11 43	11 42	11 40	11 38	11 36	11 34	11 32
−2 40	11 50	11 49	11 47	11 46	11 45	11 44	11 42	11 40	11 38	11 37
−2 20	11 52	11 51	11 50	11 49	11 48	11 47	11 46	11 44	11 43	11 41
−2 0	11 55	11 54	11 53	11 52	11 52	11 50	11 49	11 48	11 47	11 46
−1 40	11 57	11 56	11 55	11 55	11 55	11 54	11 53	11 52	11 51	11 50
−1 20	11 59	11 59	11 58	11 58	11 58	11 57	11 57	11 56	11 56	11 55
−1 0	12 2	12 2	12 1	12 1	12 1	12 1	12 1	12 0	12 0	11 59
−0 40	12 4	12 4	12 4	12 4	12 4	12 4	12 4	12 4	12 4	12 4
−0 20	12 7	12 7	12 7	12 7	12 7	12 7	12 8	12 8	12 8	12 9
+0 0	12 9	12 9	12 10	12 10	12 10	12 11	12 11	12 12	12 13	12 13
0 20	12 11	12 12	12 13	12 13	12 14	12 14	12 15	12 16	12 17	12 18
0 40	12 14	12 14	12 15	12 16	12 17	12 17	12 19	12 20	12 21	12 23
1 0	12 16	12 17	12 18	12 19	12 20	12 21	12 22	12 24	12 25	12 27
1 20	12 19	12 20	12 20	12 22	12 23	12 25	12 26	12 28	12 29	12 32
1 40	12 21	12 22	12 23	12 25	12 26	12 28	12 30	12 32	12 34	12 37
2 0	12 23	12 25	12 26	12 28	12 29	12 31	12 34	12 36	12 38	12 41
2 20	12 26	12 28	12 29	12 31	12 32	12 35	12 37	12 40	12 43	12 46
2 40	12 28	12 30	12 32	12 34	12 36	12 38	12 41	12 44	12 47	12 50
3 0	12 31	12 32	12 35	12 37	12 39	12 41	12 44	12 48	12 51	12 55
3 20	12 33	12 35	12 37	12 40	12 42	12 45	12 48	12 52	12 55	13 0
3 40	12 35	12 38	12 40	12 43	12 46	12 49	12 52	12 56	13 0	13 4
4 0	12 38	12 40	12 43	12 46	12 49	12 52	12 56	13 0	13 4	13 9
4 20	12 40	12 43	12 46	12 49	12 52	12 55	12 59	13 4	13 8	13 14
4 40	12 43	12 46	12 49	12 52	12 55	12 59	13 3	13 8	13 13	13 19
5 0	12 45	12 48	12 51	12 55	12 58	13 2	13 7	13 12	13 17	13 23
5 20	12 47	12 51	12 54	12 58	13 2	13 6	13 11	13 16	13 22	13 28
5 40	12 50	12 53	12 57	13 1	13 5	13 10	13 14	13 20	13 26	13 33
6 0	12 53	12 56	12 59	13 4	13 8	13 13	13 18	13 24	13 31	13 38
6 20	12 55	12 59	13 2	13 7	13 11	13 16	13 22	13 28	13 35	13 43
6 40	12 58	13 1	13 5	13 10	13 14	13 20	13 26	13 32	13 39	13 47
7 0	13 0	13 4	13 8	13 13	13 18	13 23	13 29	13 36	13 44	13 52
7 20	13 2	13 7	13 11	13 16	13 21	13 27	13 33	13 40	13 48	13 57
7 40	13 5	13 9	13 14	13 19	13 25	13 31	13 37	13 44	13 53	14 2
8 0	13 7	13 12	13 17	13 22	13 28	13 34	13 41	13 48	13 57	14 7

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.								
	0°	5°	10°	15°	20°	25°	30°	35°	40°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
+8° 0′	12 7	12 13	12 18	12 24	12 31	12 38	12 45	12 53	13 3
8 20	12 7	12 13	12 19	12 25	12 32	12 39	12 47	12 55	13 5
8 40	12 7	12 13	12 19	12 26	12 33	12 40	12 48	12 57	13 8
9 0	12 7	12 13	12 20	12 26	12 34	12 41	12 50	12 59	13 10
9 20	12 7	12 13	12 20	12 27	12 35	12 43	12 52	13 1	13 13
9 40	12 7	12 14	12 21	12 28	12 36	12 44	12 53	13 3	13 14
10 0	12 7	12 14	12 21	12 29	12 37	12 45	12 55	13 5	13 17
10 20	12 7	12 14	12 22	12 29	12 38	12 47	12 56	13 7	13 19
10 40	12 7	12 14	12 22	12 30	12 39	12 48	12 58	13 9	13 22
11 0	12 7	12 15	12 23	12 31	12 40	12 49	12 59	13 11	13 24
11 20	12 7	12 15	12 23	12 32	12 41	12 50	13 1	13 13	13 26
11 40	12 7	12 15	12 24	12 32	12 42	12 52	13 2	13 15	13 29
12 0	12 7	12 15	12 24	12 33	12 43	12 53	13 4	13 17	13 31
12 20	12 7	12 16	12 25	12 34	12 44	12 55	13 6	13 19	13 34
12 40	12 7	12 16	12 25	12 35	12 45	12 56	13 8	13 21	13 36
13 0	12 7	12 16	12 26	12 35	12 46	12 57	13 9	13 23	13 38
13 20	12 7	12 16	12 26	12 36	12 47	12 58	13 11	13 25	13 41
13 40	12 7	12 17	12 27	12 37	12 48	13 0	13 13	13 27	13 43
14 0	12 7	12 17	12 27	12 38	12 49	13 1	13 14	13 29	13 46
14 20	12 7	12 17	12 28	12 39	12 50	13 2	13 16	13 31	13 48
14 40	12 7	12 17	12 28	12 40	12 51	13 4	13 17	13 33	13 51
15 0	12 7	12 18	12 29	12 40	12 52	13 5	13 19	13 35	13 53
15 20	12 7	12 18	12 29	12 41	12 53	13 7	13 21	13 37	13 56
15 40	12 7	12 18	12 30	12 41	12 54	13 8	13 23	13 39	13 58
16 0	12 7	12 19	12 30	12 42	12 55	13 9	13 25	13 41	14 1
16 20	12 7	12 19	12 31	12 43	12 56	13 11	13 26	13 43	14 3
16 40	12 7	12 19	12 31	12 44	12 58	13 12	13 28	13 45	14 6
17 0	12 7	12 19	12 32	12 45	12 59	13 13	13 29	13 47	14 8
17 20	12 7	12 20	12 32	12 46	13 0	13 15	13 31	13 50	14 11
17 40	12 7	12 20	12 33	12 46	13 1	13 16	13 33	13 52	14 14
18 0	12 7	12 20	12 33	12 47	13 2	13 17	13 35	13 54	14 16
18 20	12 7	12 20	12 34	12 48	13 3	13 19	13 37	13 56	14 19
18 40	12 7	12 21	12 34	12 49	13 4	13 20	13 38	13 58	14 22
19 0	12 7	12 21	12 35	12 50	13 5	13 22	13 40	14 0	14 24
19 20	12 7	12 21	12 35	12 51	13 6	13 23	13 42	14 2	14 26
19 40	12 7	12 22	12 36	12 52	13 7	13 25	13 44	14 5	14 29
20 0	12 7	12 22	12 36	12 52	13 8	13 26	13 46	14 7	14 32
20 20	12 7	12 22	12 37	12 53	13 10	13 28	13 47	14 10	14 35
20 40	12 7	12 22	12 37	12 54	13 11	13 29	13 49	14 12	14 37
21 0	12 7	12 23	12 38	12 55	13 12	13 31	13 51	14 14	14 40
21 20	12 7	12 23	12 39	12 56	13 13	13 32	13 53	14 16	14 43
21 40	12 7	12 23	12 39	12 56	13 14	13 34	13 55	14 19	14 46
22 0	12 7	12 24	12 40	12 57	13 16	13 35	13 56	14 21	14 49
22 20	12 7	12 24	12 41	12 58	13 17	13 37	13 58	14 23	14 52
22 40	12 7	12 24	12 41	12 59	13 18	13 38	14 0	14 25	14 54
23 0	12 7	12 25	12 42	13 0	13 19	13 40	14 2	14 28	14 57
23 20	12 7	12 25	12 42	13 1	13 20	13 41	14 4	14 30	15 0
23 27	12 7	12 25	12 43	13 1	13 20	13 41	14 5	14 31	15 1

TABLE 87.

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.									
	42°	44°	46°	48°	50°	52°	54°	56°	58°	60°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
+8° 0′	13 7	13 12	13 17	13 22	13 28	13 34	13 41	13 49	13 58	14 7
8 20	13 10	13 14	13 20	13 25	13 31	13 38	13 45	13 53	14 2	14 12
8 40	13 12	13 17	13 23	13 28	13 34	13 41	13 49	13 57	14 6	14 17
9 0	13 15	13 20	13 25	13 31	13 38	13 45	13 53	14 1	14 11	14 22
9 20	13 17	13 23	13 28	13 34	13 41	13 49	13 56	14 5	14 15	14 26
9 40	13 20	13 25	13 31	13 38	13 44	13 52	14 0	14 10	14 20	14 31
10 0	13 22	13 28	13 34	13 41	13 48	13 56	14 4	14 14	14 25	14 36
10 20	13 25	13 31	13 37	13 44	13 51	13 59	14 8	14 18	14 29	14 41
10 40	13 28	13 34	13 40	13 47	13 55	14 3	14 12	14 22	14 34	14 47
11 0	13 30	13 36	13 43	13 50	13 58	14 7	14 16	14 27	14 38	14 52
11 20	13 32	13 39	13 46	13 53	14 1	14 10	14 20	14 31	14 43	14 57
11 40	13 35	13 41	13 49	13 56	14 5	14 14	14 24	14 35	14 48	15 2
12 0	13 38	13 44	13 52	14 0	14 8	14 18	14 28	14 40	14 53	15 8
12 20	13 40	13 47	13 55	14 3	14 12	14 22	14 32	14 44	14 58	15 13
12 40	13 43	13 50	13 58	14 6	14 16	14 25	14 37	14 49	15 2	15 18
13 0	13 46	13 53	14 1	14 10	14 19	14 29	14 41	14 53	15 7	15 23
13 20	13 48	13 56	14 4	14 13	14 22	14 33	14 45	14 58	15 13	15 29
13 40	13 50	13 58	14 7	14 16	14 26	14 37	14 49	15 2	15 17	15 35
14 0	13 53	14 1	14 10	14 19	14 29	14 41	14 53	15 7	15 22	15 40
14 20	13 56	14 4	14 13	14 23	14 33	14 45	14 57	15 11	15 28	15 46
14 40	13 59	14 7	14 16	14 26	14 37	14 49	15 2	15 16	15 33	15 51
15 0	14 1	14 10	14 19	14 29	14 40	14 52	15 6	15 21	15 38	15 57
15 20	14 4	14 13	14 22	14 33	14 44	14 56	15 10	15 26	15 43	16 2
15 40	14 7	14 16	14 26	14 36	14 48	15 0	15 14	15 30	15 48	16 8
16 0	14 10	14 19	14 29	14 40	14 52	15 4	15 19	15 35	15 53	16 14
16 20	14 12	14 22	14 32	14 43	14 55	15 8	15 23	15 40	15 59	16 20
16 40	14 15	14 25	14 35	14 46	14 59	15 13	15 28	15 45	16 4	16 26
17 0	14 17	14 28	14 38	14 50	15 3	15 17	15 32	15 50	16 10	16 32
17 20	14 20	14 31	14 41	14 53	15 7	15 21	15 37	15 55	16 15	16 38
17 40	14 23	14 34	14 45	14 57	15 10	15 25	15 41	16 0	16 20	16 45
18 0	14 26	14 37	14 48	15 1	15 14	15 29	15 46	16 5	16 26	16 51
18 20	14 29	14 40	14 52	15 4	15 18	15 34	15 50	16 10	16 32	16 58
18 40	14 32	14 43	14 55	15 8	15 22	15 38	15 55	16 15	16 38	17 4
19 0	14 35	14 46	14 58	15 11	15 26	15 42	16 0	16 20	16 44	17 11
19 20	14 37	14 49	15 1	15 15	15 30	15 46	16 5	16 25	16 50	17 17
19 40	14 40	14 52	15 5	15 19	15 34	15 51	16 10	16 31	16 56	17 24
20 0	14 43	14 55	15 8	15 22	15 38	15 55	16 15	16 37	17 2	17 31
20 20	14 46	14 58	15 11	15 26	15 42	16 0	16 20	16 42	17 8	17 38
20 40	14 49	15 2	15 15	15 30	15 46	16 4	16 25	16 47	17 14	17 46
21 0	14 52	15 5	15 19	15 34	15 50	16 9	16 30	16 53	17 20	17 53
21 20	14 55	15 8	15 22	15 38	15 55	16 13	16 35	16 59	17 27	18 1
21 40	14 58	15 11	15 26	15 42	15 59	16 18	16 40	17 5	17 34	18 8
22 0	15 1	15 14	15 29	15 46	16 3	16 23	16 45	17 11	17 40	18 16
22 20	15 4	15 18	15 33	15 49	16 7	16 28	16 50	17 17	17 47	18 24
22 40	15 7	15 22	15 37	15 53	16 12	16 32	16 56	17 23	17 54	18 32
23 0	15 10	15 25	15 40	15 57	16 16	16 37	17 1	17 29	18 1	18 41
23 20	15 13	15 28	15 44	16 1	16 21	16 42	17 7	17 35	18 8	18 49
23 27	15 14	15 29	15 46	16 3	16 23	16 44	17 9	17 37	18 11	18 52

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH. 60°	61°	62°	63°	64°	65°	66°	67°	68°	69°	70°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
−23° 27′	5 52	5 31	5 8	4 42	4 11	3 34	2 46	1 29			
−23 20	5 55	5 34	5 12	4 46	4 16	3 40	2 53	1 41			
−23 0	6 2	5 43	5 21	4 56	4 28	3 53	3 11	2 11			
−22 40	6 10	5 51	5 30	5 6	4 39	4 7	3 27	2 35	0 59		
−22 20	6 17	5 59	5 39	5 16	4 50	4 20	3 43	2 56	1 43		
−22 0	6 25	6 7	5 47	5 25	5 1	4 32	3 58	3 14	2 13		
−21 40	6 32	6 14	5 56	5 34	5 11	4 43	4 11	3 31	2 38	1 1	
−21 20	6 39	6 22	6 4	5 43	5 20	4 55	4 24	3 47	2 59	1 45	
−21 0	6 46	6 29	6 12	5 52	5 30	5 5	4 36	4 1	3 18	2 16	
−20 40	6 52	6 37	6 20	6 1	5 40	5 16	4 48	4 16	3 35	2 41	1 2
−20 20	6 59	6 44	6 27	6 9	5 49	5 26	4 59	4 29	3 51	3 2	1 47
−20 0	7 5	6 51	6 34	6 17	5 58	5 35	5 10	4 41	4 6	3 22	2 19
−19 40	7 12	6 58	6 42	6 25	6 6	5 45	5 21	4 53	4 20	3 39	2 44
−19 20	7 18	7 4	6 49	6 33	6 14	5 54	5 31	5 5	4 34	3 55	3 6
−19 0	7 25	7 11	6 56	6 41	6 23	6 3	5 41	5 16	4 47	4 11	3 26
−18 40	7 31	7 17	7 4	6 48	6 31	6 12	5 51	5 26	4 59	4 25	3 44
−18 20	7 37	7 24	7 10	6 55	6 39	6 20	6 1	5 37	5 11	4 39	4 1
−18 0	7 43	7 31	7 17	7 3	6 47	6 29	6 10	5 47	5 22	4 52	4 16
−17 40	7 49	7 37	7 24	7 10	6 55	6 38	6 19	5 57	5 33	5 5	4 31
−17 20	7 55	7 43	7 31	7 17	7 2	6 46	6 28	6 7	5 43	5 17	4 45
−17 0	8 1	7 49	7 37	7 24	7 9	6 53	6 36	6 16	5 54	5 28	4 58
−16 40	8 6	7 55	7 44	7 31	7 17	7 1	6 44	6 26	6 4	5 40	5 11
−16 20	8 12	8 1	7 50	7 38	7 24	7 9	6 52	6 35	6 14	5 51	5 23
−16 0	8 17	8 7	7 56	7 44	7 31	7 17	7 1	6 44	6 24	6 2	5 35
−15 40	8 23	8 13	8 2	7 51	7 38	7 25	7 9	6 52	6 34	6 12	5 47
−15 20	8 29	8 19	8 8	7 58	7 45	7 32	7 17	7 1	6 43	6 22	5 59
−15 0	8 34	8 25	8 15	8 4	7 52	7 39	7 25	7 9	6 52	6 32	6 10
−14 40	8 40	8 31	8 21	8 10	7 59	7 46	7 32	7 17	7 1	6 42	6 20
−14 20	8 45	8 36	8 27	8 17	8 5	7 53	7 40	7 26	7 10	6 51	6 31
−14 0	8 50	8 42	8 33	8 23	8 12	8 1	7 47	7 34	7 18	7 1	6 41
−13 40	8 56	8 47	8 38	8 29	8 19	8 7	7 55	7 41	7 26	7 10	6 51
−13 20	9 1	8 53	8 44	8 35	8 25	8 14	8 2	7 49	7 35	7 19	7 1
−13 0	9 6	8 58	8 50	8 41	8 32	8 21	8 10	7 57	7 43	7 28	7 10
−12 40	9 11	9 4	8 56	8 47	8 38	8 28	8 17	8 5	7 51	7 37	7 20
−12 20	9 17	9 10	9 2	8 53	8 44	8 34	8 24	8 12	7 59	7 45	7 29
−12 0	9 22	9 15	9 7	8 59	8 50	8 41	8 31	8 20	8 7	7 53	7 38
−11 40	9 27	9 20	9 13	9 5	8 56	8 47	8 38	8 27	8 15	8 2	7 47
−11 20	9 32	9 25	9 19	9 11	9 3	8 54	8 44	8 34	8 23	8 10	7 56
−11 0	9 37	9 31	9 24	9 17	9 9	9 0	8 51	8 41	8 31	8 18	8 5
−10 40	9 42	9 36	9 29	9 22	9 15	9 7	8 58	8 49	8 38	8 26	8 14
−10 20	9 47	9 41	9 35	9 28	9 21	9 13	9 5	8 56	8 46	8 34	8 22
−10 0	9 52	9 46	9 40	9 34	9 27	9 19	9 11	9 3	8 53	8 42	8 31
−9 40	9 57	9 51	9 46	9 40	9 33	9 26	9 18	9 10	9 0	8 50	8 39
−9 20	10 2	9 56	9 51	9 45	9 39	9 32	9 25	9 16	9 8	8 58	8 47
−9 0	10 7	10 2	9 56	9 50	9 44	9 38	9 31	9 23	9 15	9 5	8 55
−8 40	10 11	10 7	10 2	9 56	9 50	9 44	9 37	9 30	9 22	9 13	9 3
−8 20	10 16	10 12	10 7	10 2	9 56	9 50	9 44	9 37	9 29	9 21	9 11
−8 0	10 21	10 17	10 12	10 7	10 2	9 56	9 50	9 43	9 36	9 28	9 19

TABLE 87.

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.									
	71°	72°	73°	74°	75°	76°	77°	78°	79°	80°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
−23° 27′										
−23 20										
−23 0										
−22 40										
−22 20										
−22 0										
−21 40										
−21 20										
−21 0										
−20 40										
−20 20										
−20 0										
−19 40	1 3									
−19 20	1 50									
−19 0	2 22									
−18 40	2 47	1 5								
−18 20	3 10	1 52								
−18 0	3 30	2 25								
−17 40	3 49	2 52	1 6							
−17 20	4 6	3 14	1 55							
−17 0	4 22	3 35	2 29							
−16 40	4 37	3 54	2 56	1 8						
−16 20	4 52	4 12	3 20	1 58						
−16 0	5 6	4 28	3 41	2 32						
−15 40	5 19	4 44	4 1	3 1	1 10					
−15 20	5 32	4 59	4 19	3 25	2 2					
−15 0	5 44	5 13	4 36	3 47	2 37					
−14 40	5 56	5 27	4 52	4 7	3 6	1 13				
−14 20	6 8	5 40	5 7	4 26	3 31	2 5				
−14 0	6 19	5 52	5 21	4 43	3 54	2 42				
−13 40	6 29	6 5	5 35	5 0	4 14	3 12	1 15			
−13 20	6 40	6 17	5 49	5 16	4 34	3 38	2 10			
−13 0	6 51	6 29	6 2	5 31	4 52	4 2	2 48			
−12 40	6 1	6 40	6 15	5 45	5 9	4 23	3 19	1 18		
−12 20	7 11	6 50	6 27	5 59	5 25	4 43	3 46	2 15		
−12 0	7 21	7 1	6 39	6 13	5 41	5 2	4 10	2 55		
−11 40	7 31	7 12	6 51	6 26	5 56	5 19	4 32	3 27	1 21	
−11 20	7 40	7 23	7 3	6 38	6 11	5 38	4 53	3 55	2 20	
−11 0	7 50	7 33	7 14	6 51	6 25	5 54	5 13	4 20	3 2	
−10 40	7 59	7 43	7 25	7 3	6 34	6 9	5 31	4 43	3 35	1 25
−10 20	8 8	7 53	7 35	7 15	6 52	6 23	5 49	5 5	4 5	2 27
−10 0	8 17	8 3	7 46	7 27	7 4	6 38	6 6	5 25	4 31	3 10
−9 40	8 26	8 13	7 56	7 38	7 17	6 52	6 22	5 44	4 56	3 46
−9 20	8 35	8 22	8 7	7 50	7 29	7 6	6 38	6 3	5 19	4 17
−9 0	8 44	8 31	8 17	8 1	7 41	7 20	6 53	6 21	5 40	4 44
−8 40	8 53	8 41	8 27	8 11	7 53	7 33	7 8	6 38	6 0	5 10
−8 20	9 1	8 50	8 37	8 22	8 5	7 46	7 22	6 55	6 19	5 34
−8 0	9 10	8 59	8 47	8 33	8 17	7 59	7 36	7 11	6 38	5 56

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.										
	60°	61°	62°	63°	64°	65°	66°	67°	68°	69°	70°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
−8° 0′	10 21	10 17	10 12	10 7	10 2	9 56	9 50	9 43	9 36	9 28	9 19
−7 40	10 26	10 22	10 17	10 13	10 8	10 2	9 56	9 50	9 43	9 35	9 27
−7 20	10 31	10 27	10 23	10 18	10 13	10 8	10 3	9 57	9 50	9 43	9 35
−7 0	10 35	10 32	10 28	10 23	10 19	10 14	10 9	10 4	9 57	9 50	9 43
−6 40	10 40	10 37	10 33	10 29	10 25	10 20	10 15	10 10	10 4	9 57	9 51
−6 20	10 45	10 42	10 38	10 34	10 31	10 26	10 22	10 16	10 11	10 5	9 58
−6 0	10 50	10 47	10 43	10 40	10 36	10 32	10 28	10 23	10 18	10 12	10 6
−5 40	10 55	10 52	10 49	10 45	10 41	10 38	10 34	10 29	10 25	10 19	10 14
−5 20	10 59	10 56	10 54	10 50	10 47	10 44	10 40	10 36	10 31	10 26	10 21
−5 0	11 4	11 1	10 59	10 56	10 53	10 50	10 46	10 42	10 38	10 34	10 29
−4 40	11 8	11 6	11 4	11 1	10 58	10 55	10 52	10 49	10 45	10 41	10 36
−4 20	11 13	11 11	11 9	11 7	11 4	11 1	10 58	10 55	10 52	10 48	10 44
−4 0	11 18	11 16	11 14	11 12	11 10	11 7	11 4	11 1	10 58	10 55	10 51
−3 40	11 22	11 21	11 19	11 17	11 15	11 13	11 10	11 8	11 5	11 2	10 59
−3 20	11 27	11 26	11 24	11 22	11 20	11 19	11 16	11 14	11 11	11 9	11 6
−3 0	11 32	11 31	11 29	11 28	11 26	11 24	11 22	11 20	11 18	11 16	11 13
−2 40	11 37	11 35	11 34	11 33	11 31	11 30	11 28	11 27	11 25	11 23	11 21
−2 20	11 41	11 40	11 39	11 38	11 37	11 36	11 34	11 33	11 32	11 30	11 28
−2 0	11 46	11 45	11 44	11 43	11 43	11 41	11 40	11 40	11 38	11 37	11 35
−1 40	11 50	11 50	11 49	11 49	11 48	11 47	11 46	11 46	11 45	11 44	11 43
−1 20	11 55	11 55	11 54	11 54	11 53	11 53	11 52	11 52	11 52	11 51	11 50
−1 0	11 59	11 59	11 59	11 59	11 59	11 59	11 58	11 58	11 58	11 58	11 58
−0 40	12 4	12 4	12 4	12 4	12 4	12 4	12 4	12 4	12 5	12 5	12 5
−0 20	12 9	12 9	12 9	12 10	12 10	12 10	12 10	12 11	12 11	12 12	12 12
0 0	12 13	12 14	12 14	12 15	12 15	12 16	12 16	12 17	12 18	12 19	12 19
+0 20	12 18	12 19	12 19	12 20	12 20	12 22	12 22	12 23	12 25	12 26	12 27
0 40	12 22	12 23	12 24	12 25	12 26	12 27	12 28	12 29	12 31	12 33	12 34
1 0	12 27	12 28	12 29	12 31	12 32	12 33	12 34	12 36	12 38	12 40	12 41
1 20	12 32	12 33	12 34	12 36	12 37	12 39	12 40	12 42	12 44	12 47	12 49
1 40	12 37	12 38	12 39	12 41	12 43	12 44	12 46	12 49	12 51	12 54	12 56
2 0	12 41	12 43	12 44	12 46	12 48	12 50	12 52	12 55	12 58	13 1	13 4
2 20	12 46	12 47	12 49	12 52	12 53	12 56	12 59	13 1	13 4	13 8	13 11
2 40	12 50	12 52	12 54	12 57	12 59	13 2	13 5	13 7	13 11	13 15	13 19
3 0	12 55	12 57	12 59	13 2	13 5	13 8	13 11	13 14	13 17	13 22	13 26
3 20	13 0	13 2	13 5	13 7	13 10	13 13	13 17	13 20	13 24	13 29	13 34
3 40	13 4	13 7	13 10	13 13	13 16	13 19	13 23	13 27	13 31	13 36	13 41
4 0	13 9	13 12	13 15	13 18	13 22	13 25	13 29	13 33	13 38	13 43	13 49
4 20	13 14	13 17	13 20	13 23	13 27	13 31	13 35	13 40	13 45	13 50	13 56
4 40	13 19	13 22	13 25	13 29	13 32	13 37	13 41	13 46	13 52	13 58	14 4
5 0	13 23	13 27	13 30	13 34	13 38	13 43	13 47	13 53	13 58	14 5	14 11
5 20	13 28	13 32	13 35	13 40	13 44	13 49	13 54	13 59	14 5	14 12	14 19
5 40	13 33	13 37	13 41	13 45	13 50	13 55	14 0	14 6	14 12	14 19	14 27
6 0	13 38	13 42	13 46	13 50	13 55	14 1	14 6	14 13	14 19	14 26	14 35
6 20	13 43	13 47	13 51	13 56	14 1	14 7	14 12	14 19	14 26	14 34	14 43
6 40	13 47	13 52	13 56	14 1	14 7	14 13	14 18	14 26	14 33	14 42	14 51
7 0	13 52	13 57	14 1	14 7	14 12	14 19	14 25	14 32	14 40	14 49	14 59
7 20	13 57	14 2	14 7	14 13	14 18	14 25	14 31	14 39	14 48	14 57	15 7
7 40	14 2	14 7	14 12	14 18	14 24	14 31	14 38	14 46	14 55	15 4	15 15
8 0	14 7	14 12	14 17	14 23	14 30	14 37	14 45	14 52	15 2	15 12	15 23

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.									
	71°	72°	73°	74°	75°	76°	77°	78°	79°	80°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m	h. m.	h. m.
−8° 0′	9 10	8 59	8 47	8 33	8 17	7 58	7 37	7 10	6 38	5 56
−7 40	9 18	9 08	8 56	8 43	8 28	8 11	7 50	7 26	6 56	6 18
−7 20	9 26	9 17	9 6	8 53	8 39	8 23	8 4	7 41	7 14	6 38
−7 0	9 35	9 26	9 16	9 3	8 50	8 35	8 17	7 56	7 31	6 58
−6 40	9 43	9 34	9 25	9 14	9 1	8 47	8 30	8 11	7 47	7 17
−6 20	9 51	9 43	9 34	9 24	9 12	8 59	8 43	8 25	8 3	7 36
−6 0	9 59	9 52	9 43	9 34	9 23	9 11	8 56	8 39	8 19	7 54
−5 40	10 7	10 1	9 53	9 44	9 34	9 22	9 9	8 53	8 34	8 11
−5 20	10 15	10 9	10 2	9 53	9 44	9 34	9 22	9 7	8 50	8 28
−5 0	10 23	10 17	10 11	10 3	9 55	9 45	9 34	9 20	9 5	8 46
−4 40	10 31	10 26	10 20	10 13	10 5	9 56	9 46	9 34	9 19	9 2
−4 20	10 39	10 34	10 29	10 22	10 15	10 7	9 58	9 47	9 34	9 18
−4 0	10 47	10 43	10 38	10 32	10 26	10 18	10 10	10 0	9 49	9 34
−3 40	10 55	10 51	10 46	10 41	10 36	10 29	10 22	10 13	10 3	9 50
−3 20	11 3	10 59	10 55	10 51	10 46	10 40	10 34	10 26	10 17	10 6
−3 0	11 11	11 8	11 4	11 0	10 56	10 51	10 45	10 39	10 31	10 22
−2 40	11 19	11 16	11 13	11 10	11 6	11 2	10 57	10 52	10 45	10 37
−2 20	11 26	11 24	11 22	11 19	11 16	11 13	11 8	11 4	10 59	10 52
−2 0	11 34	11 32	11 31	11 28	11 26	11 23	11 20	11 17	11 13	11 8
−1 40	11 42	11 41	11 39	11 38	11 36	11 34	11 32	11 29	11 26	11 23
−1 20	11 49	11 49	11 48	11 47	11 46	11 45	11 43	11 42	11 40	11 38
−1 0	11 57	11 57	11 56	11 56	11 56	11 55	11 55	11 55	11 54	11 53
−0 40	12 5	12 5	12 5	12 5	12 6	12 6	12 7	12 7	12 8	12 8
−0 20	12 13	12 13	12 14	12 15	12 16	12 17	12 18	12 20	12 21	12 23
0 0	12 20	12 22	12 22	12 24	12 26	12 28	12 29	12 32	12 35	12 38
+0 20	12 28	12 30	12 31	12 34	12 36	12 38	12 41	12 44	12 49	12 53
0 40	12 36	12 38	12 40	12 43	12 46	12 49	12 53	12 57	13 2	13 9
1 0	12 44	12 46	12 49	12 52	12 56	13 0	13 5	13 10	13 16	13 24
1 20	12 52	12 55	12 58	13 2	13 6	13 11	13 16	13 23	13 30	13 40
1 40	12 59	13 3	13 7	13 11	13 16	13 22	13 28	13 36	13 44	13 55
2 0	13 7	13 11	13 16	13 20	13 26	13 32	13 40	13 49	13 59	14 11
2 20	13 15	13 19	13 25	13 30	13 36	13 43	13 52	14 1	14 13	14 27
2 40	13 23	13 28	13 33	13 40	13 46	13 54	14 4	14 14	14 28	14 43
3 0	13 31	13 36	13 42	13 49	13 57	14 5	14 16	14 28	14 42	14 59
3 20	13 39	13 44	13 51	13 59	14 7	14 17	14 28	14 41	14 56	15 16
3 40	13 47	13 53	14 1	14 8	14 17	14 28	14 40	14 55	15 11	15 33
4 0	13 55	14 2	14 10	14 18	14 28	14 40	14 53	15 8	15 27	15 50
4 20	14 3	14 10	14 19	14 28	14 38	14 51	15 5	15 22	15 43	16 7
4 40	14 11	14 19	14 28	14 38	14 49	15 2	15 18	15 36	15 58	16 25
5 0	14 19	14 28	14 37	14 48	15 0	15 14	15 31	15 50	16 14	16 44
5 20	14 27	14 37	14 46	14 58	15 11	15 26	15 44	16 5	16 31	17 3
5 40	14 35	14 45	14 56	15 8	15 22	15 38	15 57	16 20	16 47	17 22
6 0	14 44	14 54	15 5	15 19	15 33	15 50	16 11	16 35	17 5	17 43
6 20	14 52	15 3	15 15	15 29	15 44	16 3	16 25	16 51	17 23	18 5
6 40	15 1	15 12	15 25	15 40	15 56	16 16	16 39	17 7	17 41	18 27
7 0	15 10	15 22	15 35	15 50	16 8	16 29	16 53	17 23	18 1	18 50
7 20	15 18	12 31	15 45	16 1	16 20	16 42	17 8	17 40	18 21	19 16
7 40	15 27	15 40	15 55	16 12	16 32	16 55	17 23	17 58	18 42	19 44
8 0	15 35	15 50	16 5	16 23	16 44	17 9	17 39	18 16	19 5	20 15

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.										
	60°	61°	62°	63°	64°	65°	66°	67°	68°	69°	70°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
+ 8° 0′	14 7	14 12	14 17	14 23	14 30	14 37	14 45	14 53	15 2	15 12	15 23
8 20	14 12	14 1;	14 23	14 29	14 36	14 43	14 52	15 0	15 10	15 20	15 32
8 40	14 17	14 22	14 28	14 35	14 42	14 50	14 58	15 7	15 17	15 28	15 40
9 0	14 22	14 27	14 34	14 41	14 48	14 56	15 5	15 14	15 25	15 36	15 49
9 20	14 27	14 32	14 39	14 46	14 54	15 2	15 11	15 21	15 32	15 44	15 57
9 40	14 32	14 38	14 45	14 52	15 0	15 9	15 18	15 28	15 40	15 52	16 6
10 0	14 37	14 43	14 50	14 58	15 6	15 15	15 25	15 35	15 47	16 0	16 15
10 20	14 42	14 49	14 56	15 4	15 13	15 22	15 32	15 43	15 55	16 8	16 24
10 40	14 47	14 54	15 2	15 10	15 19	15 28	15 39	15 50	16 3	16 17	16 33
11 0	14 52	14 59	15 7	15 16	15 25	15 35	15 46	15 58	16 11	16 26	16 42
11 20	14 57	15 5	15 13	15 22	15 31	15 41	15 53	16 5	16 19	16 34	16 52
11 40	15 2	15 10	15 19	15 28	15 38	15 48	16 0	16 13	16 27	16 43	17 1
12 0	15 8	15 16	15 25	15 34	15 44	15 55	16 7	16 21	16 35	16 52	17 11
12 20	15 13	15 21	15 31	15 40	15 50	16 2	16 15	16 29	16 44	17 1	17 21
12 40	15 18	15 27	15 36	15 46	15 57	16 9	16 22	16 37	16 53	17 11	17 31
13 0	15 23	15 33	15 42	15 53	16 4	16 16	16 30	16 45	17 2	17 20	17 41
13 20	15 29	15 39	15 48	15 59	16 11	16 23	16 37	16 53	17 10	17 30	17 52
13 40	15 35	15 44	15 55	16 5	16 17	16 31	16 45	17 1	17 19	17 40	18 3
14 0	15 40	15 50	16 1	16 12	16 24	16 38	16 53	17 10	17 29	17 50	18 14
14 20	15 46	15 56	16 7	16 19	16 31	16 46	17 1	17 19	17 38	18 0	18 26
14 40	15 51	16 2	16 13	16 25	16 38	16 53	17 9	17 28	17 48	18 11	18 38
15 0	15 57	16 8	16 19	16 32	16 46	17 1	17 17	17 37	17 58	18 22	18 50
15 20	16 2	16 14	16 26	16 39	16 53	17 9	17 26	17 46	18 8	18 33	19 3
15 40	16 8	16 20	16 32	16 46	17 1	17 17	17 35	17 55	18 18	18 45	19 16
16 0	16 14	16 26	16 39	16 53	17 8	17 25	17 44	18 5	18 29	18 57	19 30
16 20	16 20	16 32	16 46	17 0	17 16	17 33	17 53	18 15	18 40	19 10	19 45
16 40	16 26	16 39	16 52	17 7	17 23	17 41	18 2	18 25	18 51	19 23	20 1
17 0	16 32	16 45	16 59	17 14	17 31	17 50	18 11	18 35	19 3	19 36	20 17
17 20	16 38	16 52	17 6	17 22	17 39	17 59	18 21	18 46	19 15	19 50	20 35
17 40	16 45	16 58	17 13	17 29	17 47	18 8	18 31	18 57	19 28	20 6	20 55
18 0	16 51	17 5	17 20	17 37	17 56	18 17	18 41	19 8	19 41	20 22	21 17
18 20	16 58	17 12	17 28	17 45	18 5	18 26	18 52	19 20	19 55	20 40	21 42
18 40	17 4	17 19	17 35	17 53	18 14	18 36	19 3	19 33	20 10	20 59	22 13
19 0	17 11	17 26	17 43	18 2	18 23	18 46	19 14	19 46	20 26	21 20	22 58
19 20	17 17	17 33	17 51	18 10	18 32	18 56	19 25	20 0	20 44	21 45	
19 40	17 24	17 41	17 59	18 19	18 41	19 7	19 37	20 14	21 3	22 16	
20 0	17 31	17 48	18 7	18 28	18 51	19 19	19 50	20 30	21 23	22 59	
20 20	17 38	17 56	18 15	18 37	19 1	19 30	20 4	20 47	24 47		
20 40	17 45	18 4	18 23	18 46	19 12	19 42	20 19	21 5	22 17		
21 0	17 52	18 11	18 32	18 56	19 23	19 25	20 34	21 26	23 1		
21 20	18 0	18 20	18 41	19 6	19 34	20 8	20 50	21 50			
21 40	18 8	18 28	18 50	19 16	19 46	20 22	21 8	22 19			
22 0	18 16	18 37	19 0	19 27	19 58	20 37	21 29	23 2			
22 20	18 24	18 46	19 10	19 38	20 11	20 53	21 52				
22 40	18 32	18 55	19 20	19 50	20 25	21 11	22 21				
23 0	18 41	19 4	19 31	20 2	20 40	21 31	23 3				
23 20	18 49	19 13	19 41	20 14	20 56	21 54					
23 27	18 52	19 17	19 46	20 19	21 2	22 3					

Table 87.

DURATION OF SUNSHINE AT DIFFERENT LATITUDES.

Declination of the Sun.	LATITUDE NORTH.				
	71°	72°	73°	74°	75°
	h. m.	h. m.	h. m.	h. m.	h. m.
+ 8° 0′	15 35	15 50	16 5	16 23	16 44
8 20	15 44	15 59	16 16	16 35	16 57
8 40	15 53	16 9	16 26	16 46	17 10
9 0	16 3	16 19	16 37	16 58	17 23
9 20	16 12	16 29	16 48	17 10	17 37
9 40	16 22	16 39	16 59	17 23	17 51
10 0	16 31	16 50	17 11	17 35	18 5
10 20	16 41	17 0	17 22	17 49	18 20
10 40	16 50	17 11	17 34	18 2	18 36
11 0	17 1	17 22	17 47	18 16	18 52
11 20	17 11	17 34	17 59	18 31	19 9
11 40	17 22	17 45	18 13	18 46	19 27
12 0	17 32	17 57	18 26	19 1	19 46
12 20	17 43	18 9	18 40	19 18	20 7
12 40	17 55	18 22	18 55	19 35	20 29
13 0	18 6	18 35	19 11	19 54	20 55
13 20	18 18	18 49	19 26	20 14	21 23
13 40	18 30	19 2	19 43	20 35	21 59
14 0	18 43	19 17	20 1	21 0	22 50
14 20	18 56	19 33	20 20	21 28	
14 40	19 10	19 49	20 41	22 2	
15 0	19 24	20 7	21 5	22 52	
15 20	19 40	20 26	21 32		
15 40	19 55	20 46	22 5		
16 0	20 13	21 10	22 54		
16 20	20 31	21 36			
16 40	20 51	22 8			
17 0	21 13	22 56			
17 20	21 39				
17 40	22 11				
	76°	77°	78°	79°	80°
+ 8° 0′	17 9	17 39	18 16	19 5	20 15
8 20	17 23	17 55	18 35	19 29	20 50
8 40	17 38	18 12	18 56	19 56	21 33
9 0	17 53	18 30	19 17	20 25	22 35
9 20	18 8	18 48	19 41	20 59	
9 40	18 25	19 8	20 6	21 40	
10 0	18 41	19 28	20 31	22 39	
10 20	18 59	19 50	21 6		
10 40	19 18	20 15	21 46		
11 0	19 38	20 41	22 43		
11 20	19 59	21 13			
11 40	20 23	21 50			
12 0	20 49	22 46			
12 20	21 19				
12 40	21 55				

Table 88.

DECLINATION OF THE SUN FOR THE YEAR 1899.

Day of Month.	*Jan.*	*Feb.*	*Mar.*
1	−23° 0′	−17° 4′	− 7° 33′
4	−22 44	16 12	6 24
7	22 22	15 16	5 14
10	21 57	14 19	4 4
13	21 28	13 19	2 53
16	20 55	12 18	1 42
19	20 19	11 14	− 0 31
21	19 53	10 31	+ 0 16
24	19 11	9 25	1 27
27	18 26	8 18	2 38
30	17 38	......	3 48
	Apr.	*May.*	*June.*
1	+ 4° 34′	+15° 6′	+22° 4′
4	5 43	15 59	22 27
7	6 51	16 50	22 46
10	7 58	17 38	23 1
13	9 4	18 24	23 13
16	10 9	19 7	23 22
19	11 12	19 47	23 26
21	11 53	20 12	23 27
24	12 53	20 47	23 25
27	13 51	21 19	23 20
30	14 48	21 47	23 11
	July.	*Aug.*	*Sept.*
1	+23° 7′	+18° 1′	+ 8° 17′
4	22 53	17 15	7 11
7	22 36	16 26	6 4
10	22 15	15 34	4 56
13	21 50	14 40	3 47
16	21 22	13 44	2 38
19	20 51	12 46	1 28
21	20 29	12 7	+ 0 42
24	19 52	11 6	− 0 29
27	19 13	10 4	1 39
30	18 31	9 0	2 49
	Oct.	*Nov.*	*Dec.*
1	− 3° 12′	−14° 27′	−21° 50′
4	4 22	15 24	22 16
7	5 31	16 18	22 38
10	6 40	17 10	22 56
13	7 48	18 0	23 10
16	8 55	18 46	23 20
19	10 0	19 29	23 26
21	10 43	19 56	23 27
24	11 47	20 35	23 26
27	12 48	21 9	23 20
30	13 49	21 40	23 10

DURATION OF ASTRONOMICAL TWILIGHT.

(Interval between sunrise or sunset and the time when the true position of the sun's center is 18° below the horizon.)

Date.	NORTH LATITUDE.														
	0°	10°	20°	25°	30°	32°	34°	36°	38°	40°	42°	44°	46°	48°	50°
	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.
Jan. 1	1 14	1 15	1 18	1 21	1 26	1 28	1 29	1 31	1 34	1 37	1 41	1 45	1 49	1 53	1 59
11	1 14	1 14	1 18	1 21	1 25	1 27	1 29	1 31	1 33	1 36	1 39	1 43	1 47	1 52	1 57
21	1 13	1 13	1 17	1 20	1 23	1 25	1 28	1 30	1 32	1 34	1 38	1 41	1 45	1 49	1 54
Feb. 1	1 12	1 12	1 15	1 18	1 22	1 24	1 26	1 28	1 30	1 33	1 36	1 39	1 43	1 47	1 52
11	1 11	1 12	1 14	1 17	1 21	1 23	1 25	1 27	1 29	1 32	1 34	1 37	1 41	1 45	1 49
21	1 10	1 11	1 13	1 16	1 20	1 22	1 24	1 26	1 28	1 31	1 33	1 36	1 40	1 44	1 48
Mar. 1	1 10	1 11	1 13	1 16	1 20	1 21	1 23	1 25	1 28	1 30	1 33	1 36	1 39	1 43	1 48
11	1 09	1 10	1 13	1 16	1 19	1 21	1 23	1 25	1 28	1 30	1 33	1 36	1 39	1 43	1 48
21	1 09	1 10	1 13	1 16	1 20	1 22	1 24	1 26	1 29	1 31	1 34	1 37	1 41	1 45	1 50
Apr. 1	1 09	1 11	1 14	1 17	1 21	1 23	1 25	1 27	1 30	1 33	1 36	1 40	1 44	1 49	1 54
11	1 10	1 11	1 15	1 18	1 22	1 24	1 27	1 30	1 33	1 36	1 39	1 43	1 48	1 54	2 00
21	1 11	1 12	1 16	1 20	1 24	1 27	1 29	1 32	1 36	1 39	1 43	1 48	1 54	2 01	2 08
May 1	1 12	1 13	1 18	1 22	1 27	1 30	1 33	1 36	1 39	1 43	1 48	1 54	2 01	2 10	2 20
11	1 13	1 14	1 19	1 24	1 30	1 33	1 36	1 40	1 43	1 48	1 54	2 01	2 10	2 20	2 35
21	1 13	1 15	1 21	1 26	1 32	1 36	1 39	1 43	1 48	1 54	2 01	2 10	2 20	2 35	2 58
June 1	1 14	1 16	1 23	1 28	1 35	1 38	1 41	1 46	1 52	1 59	2 07	2 18	2 31	2 54	
11	1 15	1 17	1 24	1 29	1 36	1 40	1 44	1 49	1 55	2 02	2 12	2 23	2 40	3 11	
21	1 15	1 18	1 24	1 29	1 37	1 41	1 45	1 50	1 56	2 03	2 13	2 25	2 44	3 19	
July 1	1 15	1 17	1 24	1 29	1 36	1 40	1 44	1 49	1 55	2 02	2 12	2 23	2 40	3 10	
11	1 14	1 16	1 23	1 28	1 35	1 38	1 41	1 46	1 52	1 59	2 07	2 18	2 31	2 54	
21	1 13	1 15	1 21	1 26	1 32	1 36	1 39	1 43	1 48	1 54	2 01	2 10	2 21	2 36	3 00
Aug. 1	1 13	1 14	1 19	1 24	1 30	1 33	1 36	1 40	1 44	1 48	1 54	2 02	2 10	2 20	2 35
11	1 12	1 13	1 18	1 22	1 27	1 30	1 33	1 36	1 39	1 43	1 48	1 54	2 01	2 10	2 20
21	1 11	1 12	1 16	1 20	1 24	1 27	1 30	1 33	1 36	1 39	1 43	1 48	1 54	2 01	2 09
Sept. 1	1 10	1 11	1 14	1 18	1 22	1 24	1 27	1 30	1 33	1 36	1 39	1 43	1 48	1 53	2 00
11	1 09	1 11	1 13	1 17	1 21	1 23	1 25	1 27	1 30	1 33	1 36	1 39	1 44	1 49	1 54
21	1 09	1 10	1 13	1 16	1 20	1 22	1 24	1 26	1 29	1 31	1 34	1 37	1 41	1 45	1 50
Oct. 1	1 09	1 10	1 13	1 16	1 19	1 21	1 23	1 25	1 28	1 30	1 33	1 36	1 39	1 43	1 48
11	1 10	1 11	1 13	1 16	1 19	1 21	1 23	1 25	1 28	1 30	1 33	1 36	1 39	1 43	1 48
21	1 10	1 11	1 13	1 16	1 20	1 22	1 24	1 26	1 28	1 31	1 33	1 36	1 40	1 44	1 48
Nov. 1	1 11	1 12	1 14	1 17	1 21	1 23	1 25	1 27	1 29	1 32	1 34	1 38	1 41	1 46	1 49
11	1 12	1 12	1 16	1 18	1 22	1 24	1 26	1 28	1 30	1 33	1 36	1 40	1 43	1 47	1 52
21	1 13	1 13	1 17	1 20	1 24	1 26	1 28	1 30	1 32	1 35	1 38	1 42	1 46	1 49	1 55
Dec. 1	1 14	1 14	1 18	1 21	1 25	1 27	1 29	1 31	1 33	1 36	1 40	1 44	1 47	1 52	1 57
11	1 14	1 15	1 18	1 22	1 26	1 28	1 30	1 32	1 34	1 37	1 41	1 45	1 49	1 53	1 59
21	1 15	1 16	1 19	1 22	1 26	1 28	1 30	1 32	1 35	1 38	1 41	1 45	1 49	1 54	1 59

DURATION OF CIVIL TWILIGHT.

(Interval between sunrise or sunset and the time when the true position of the sun's center is 6° below the horizon.)

[Minutes.]

Date.	NORTH LATITUDE.														
	0°	10°	20°	25°	30°	32°	34°	36°	38°	40°	42°	44°	46°	48°	50°
Jan. 1	22	22	24	25	27	27	28	28	29	30	32	33	34	36	39
11	22	22	24	25	26	27	28	28	29	30	31	32	33	35	38
21	22	22	23	24	26	26	27	27	28	29	30	32	33	34	37
Feb. 1	22	22	23	24	25	26	27	27	27	28	29	31	32	34	35
11	22	22	22	23	25	26	26	27	27	28	29	30	31	33	34
21	21	22	22	23	24	25	25	26	27	28	28	29	30	32	33
Mar. 1	21	22	22	23	24	24	25	26	27	28	28	29	30	31	33
11	21	21	22	23	24	24	25	26	26	27	27	29	30	31	32
21	21	21	22	23	24	24	25	26	26	27	27	28	30	31	33
Apr. 1	21	21	22	23	24	25	25	26	27	28	28	29	30	32	33
11	21	22	22	23	24	25	26	26	27	28	28	29	31	32	34
21	22	22	22	23	25	25	26	27	28	28	29	30	32	34	35
May 1	22	22	23	24	25	26	27	28	28	29	30	32	33	35	36
11	22	22	23	24	26	27	28	29	29	30	31	33	35	36	39
21	22	22	24	25	27	28	28	29	30	31	33	35	36	38	41
June 1	22	22	24	25	27	28	28	29	31	32	34	36	37	40	43
11	22	23	24	26	28	28	29	30	31	33	34	36	38	41	44
21	22	23	25	26	28	29	29	30	31	33	34	36	38	42	44
July 1	22	23	24	26	28	28	29	30	31	33	34	36	38	41	44
11	22	22	24	25	27	28	28	29	31	32	34	36	37	40	43
21	22	22	24	25	27	28	28	29	30	31	33	35	36	38	41
Aug. 1	22	22	23	24	26	27	28	29	29	30	31	33	35	36	39
11	22	22	23	24	25	26	27	28	28	29	30	32	33	35	36
21	22	22	22	23	25	25	26	28	28	28	29	30	32	34	35
Sept. 1	21	22	22	23	24	25	26	26	27	28	28	29	31	32	34
11	21	21	22	23	24	25	25	26	27	28	28	29	30	31	33
21	21	21	22	23	24	24	25	26	26	27	27	29	30	31	32
Oct. 1	21	21	22	23	24	24	25	26	26	27	27	29	30	31	32
11	21	22	22	23	24	24	25	26	27	28	28	29	30	31	33
21	21	22	22	23	24	25	25	26	27	28	28	29	30	32	33
Nov. 1	22	22	22	23	25	25	26	27	28	28	29	30	31	33	34
11	22	22	23	24	25	26	27	28	28	29	30	31	32	33	35
21	22	22	23	24	26	26	27	28	28	29	30	32	33	34	37
Dec. 1	22	22	24	25	26	27	28	28	29	30	31	33	34	35	38
11	22	22	24	25	27	27	28	28	29	30	32	33	34	36	39
21	22	23	24	25	27	27	28	28	29	31	32	33	34	37	39

RELATIVE INTENSITY OF SOLAR RADIATION.

Mean intensity J for 24 hours of solar radiation on a horizontal surface at the top of the atmosphere and the solar constant A, in terms of the mean solar constant A_0.

Date.	Longitude of the Sun.	Relative Mean Vertical Intensity $\left(\frac{J}{A_0}\right)$. Latitude North. 0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	$\frac{A}{A_0}$.
Jan. 1	0°.99	0.303	0.265	0.220	0.169	0.117	0.066	0.018				1.0335
16	15.78	.307	.271	.229	.180	.129	.078	.028				1.0324
Feb. 1	31.54	.312	.282	.244	.200	.150	.100	.048	0.006			1.0288
15	45.34	.317	.293	.261	.223	.177	.118	.075	.027			1.0235
Mar. 1	59.14	.320	.303	.279	.245	.204	.158	.108	.056	0.013		1.0173
16	73.93	.321	.313	.296	.270	.236	.195	.148	.097	.057		1.0096
Apr. 1	89.70	.317	.319	.312	.295	.269	.235	.195	.148	.101	0.082	1.0009
16	104.49	.311	.321	.323	.315	.297	.271	.238	.201	.175	.177	0.9923
May 1	119.29	.303	.318	.330	.329	.320	.302	.278	.253	.255	.259	0.9841
16	134.05	.294	.318	.333	.339	.337	.327	.312	.298	.317	.322	0.9772
June 1	149.82	.287	.315	.334	.345	.349	.345	.337	.344	.360	.366	0.9714
16	164.60	.283	.313	.334	.348	.354	.353	.348	.361	.378	.384	0.9679
July 1	179.39	.283	.312	.333	.347	.352	.351	.345	.356	.373	.379	0.9666
16	194.13	.287	.314	.332	.342	.345	.340	.329	.331	.347	.352	0.9674
Aug. 1	209.94	.294	.316	.330	.334	.330	.318	.300	.282	.295	.300	0.9709
16	224.73	.303	.318	.325	.322	.310	.291	.264	.234	.227	.231	0.9760
Sept. 1	240.50	.310	.318	.316	.305	.285	.256	.220	.180	.139	.140	0.9828
16	255.29	.315	.315	.305	.284	.256	.220	.178	.130	.107	.043	0.9909
Oct. 1	270.07	.317	.308	.289	.261	.225	.183	.135	.084	.065		0.9995
16	284.86	.316	.298	.271	.236	.194	.147	.097	.047	.015		1.0080
Nov. 1	300.63	.312	.286	.251	.211	.164	.114	.063	.018			1.0164
16	315.42	.308	.276	.235	.190	.140	.089	.040				1.0235
Dec. 1	330.19	.304	.267	.224	.175	.124	.072	.024				1.0288
16	344.98	.302	.263	.218	.167	.115	.064	.016				1.0323
Year		0.305	0.301	0.289	0.268	0.241	0.209	0.173	0.144	0.133	0.126	

TABLE 92.

RELATIVE AMOUNTS OF SOLAR RADIATION RECEIVED ON A HORIZONTAL SURFACE DURING THE YEAR AT DIFFERENT LATITUDES.

Latitude. (North.)	Atmospheric transmission coefficient.				
	1.0	0.9	0.8	0.7	0.6
Equator.	439	374	316	262	213
10°	433	368	310	257	209
20°	416	350	293	242	195
30°	386	322	266	213	171
40°	347	284	231	185	144
50°	301	239	190	149	114
60°	249	191	148	113	84
70°	207	152	113	83	60
80°	192	134	94	64	43
90°	181	125	85	56	35

TABLE 93.

AIR MASS, M, CORRESPONDING TO DIFFERENT ZENITH DISTANCES OF THE SUN.

Sun's zenith distance.	Sun's zenith distance.									
	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°
	Air mass.									
0	1.00									
10	1.02					1.04				
20	1.06	1.07	1.08	1.09	1.09	1.10	1.11	1.12	1.13	1.14
30	1.15	1.17	1.18	1.19	1.20	1.22	1.24	1.25	1.27	1.28
40	1.30	1.32	1.34	1.37	1.39	1.41	1.44	1.46	1.49	1.52
50	1.55	1.59	1.62	1.66	1.70	1.74	1.78	1.83	1.88	1.94
60	2.00	2.06	2.12	2.20	2.27	2.36	2.45	2.55	2.65	2.77
70	2.90	3.05	3.21	3.39	3.59	3.82	4.08	4.37	4.72	5.12
80	5.60	6.18	6.88	7.77	8.90	10.39	12.44	15.36	19.79	26.96

TABLE 94.

RELATIVE ILLUMINATION INTENSITIES.

Source of illumination.	Intensity.	Ratio to zenithal full moon.
	Foot-candles.	
Zenithal sun	9600.0	465000.0
Sky at sunset	33.00	1650.0
Sky at end of civil twilight	0.40	20.0
Zenithal full moon	0.02	1.0
Quarter moon	0.002	0.1
Starlight	0.00008	0.004

MISCELLANEOUS TABLES.

TABLE 95.

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF AIR.

Temperature term: $\delta_t = \dfrac{0.00129305}{1+0.0020389\,(t-32^\circ)}$. Fahrenheit temperatures.

1 cubic centimeter of dry air at the temperature 32° F. and pressure 760 mm., under the standard value of gravity and sea-level, weighs 0.00129305 gram.

Temperature.	δ_t	Log δ_t	Temperature.	δ_t	Log δ_t	Temperature.	δ_t	Log δ_t
F.	0.00	—10	F.	0.00	—10	F.	0.00	—10
−45°	15339	7.18579	30°	12983	7.11339	75°	11888	7.07512
−40	15155	.18056	31	12957	.11250	76	11866	.07430
−35	14977	.17541	32	12931	.11162	77	11844	.07349
−30	14802	.17031	33	12904	.11073	78	11822	.07268
−25	14631	.16527	34	12878	.10985	79	11800	.07187
	0.00			0.00			0.00	
−20	14464	7.16029	35	12852	7.10897	80	11778	7.07107
−18	14398	.15831	36	12826	.10809	81	11756	.07026
−16	14333	.15634	37	12800	.10721	82	11734	.06946
−14	14269	.15439	38	12774	.10633	83	11713	.06865
−12	14205	.15244	39	12749	.10546	84	11691	.06785
	0.00			0.00			0.00	
−10	14142	7.15050	40	12723	7.10459	85	11670	7.06705
− 8	14079	.14856	41	12698	.10372	86	11648	.06625
− 6	14017	.14664	42	12672	.10285	87	11627	.06546
− 4	13955	.14472	43	12647	.10198	88	11605	.06466
− 2	13894	.14282	44	12622	.10112	89	11584	.06387
	0.00			0.00			0.00	
+ 0	13833	7.14092	45	12597	7.10025	90	11563	7.06307
1	13803	.13997	46	12572	.09939	91	11542	.06228
2	13773	.13903	47	12547	.09853	92	11521	.06149
3	13743	.13808	48	12522	.09767	93	11500	.06070
4	13713	.13714	49	12497	.09682	94	11479	.05992
	0.00			0.00			0.00	
5	13684	7.13621	50	12473	7.09596	95	11458	7.05913
6	13654	.13527	51	12448	.09511	96	11438	.05835
7	13625	.13434	52	12424	.09426	97	11418	.05757
8	13596	.13340	53	12400	.09341	98	11397	.05678
9	13567	.13247	54	12375	.09256	99	11376	.05600
	0.00			0.00			0.00	
10	13538	7.13155	55	12351	7.09171	100	11356	7.05523
11	13509	.13062	56	12327	.09087	101	11336	.05445
12	13480	.12970	57	12303	.09002	102	11315	.05367
13	13452	.12877	58	12280	.08918	103	11295	.05290
14	13423	.12785	59	12256	.08834	104	11275	.05213
	0.00			0.00			0.00	
15	13395	7.12694	60	12232	7.08750	105	11255	7.05136
16	13367	.12602	61	12209	.08667	106	11235	.05058
17	13338	.12510	62	12185	.08583	107	11215	.04982
18	13310	.12419	63	12162	.08500	108	11196	.04905
19	13282	.12328	64	12138	.08416	109	11176	.04828
	0.00			0.00			0.00	
20	13255	7.12237	65	12115	7.08334	110	11156	7.04752
21	13227	.12147	66	12092	.08251	112	11117	.04599
22	13200	.12056	67	12069	.08168	114	11078	.04447
23	13172	.11966	68	12046	.08085	116	11040	.04296
24	13145	.11876	69	12023	.08003	118	11001	.04145
	0.00			0.00			0.00	
25	13118	7.11786	70	12001	7.07921	120	10963	7.03994
26	13091	.11696	71	11978	.07839	125	10870	.03621
27	13064	.11606	72	11956	.07757	130	10776	.03248
28	13037	.11517	73	11933	.07675	135	10686	.02883
29	13010	.11428	74	11910	.07593	140	10597	.02518

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF AIR.

Humidity term: Values of 0378 *e*. Auxiliary to Table 97.

e = Vapor pressure in inches. (See Tables 69 and 70.)

Temperature by normal hydrogen thermometer.

Dew-Point.	e Vapor Pressure. (Ice.)	0.378 e	Dew-Point.	Vapor Pressure. (*)	0.378 e	Dew-Point.	Vapor Pressure. (Water.)	0.378 e	Dew-Point.	Vapor Pressure. (Water.)	0.378 e
F.	Inch.	Inch.	F.	Inch.	Inch.	F.	Inch.	Inch.	F.	Inches.	Inches.
−60°	0.0010	0.000	− 10°	0.0223	0.008	40°	0.2477	0.094	90°	1.423	0.538
59	.0011	.000	9	.0236	.009	41	.2575	.097	91	1.469	.555
58	.0011	.000	8	.0249	.009	42	.2677	.101	92	1.515	.573
57	.0012	.000	7	.0263	.010	43	.2782	.106	93	1.563	.591
56	.0013	.000	6	.0277	.010	44	.2891	.109	94	1.612	.609
−55	0.0014	0.001	5	0.0292	0.011	45	0.3003	0.114	95	1.662	0.628
54	.0015	.001	4	.0308	.012	46	.3120	.118	96	1.714	.648
53	.0016	.001	3	.0325	.012	47	.3240	.122	97	1.767	.668
52	.0017	.001	2	.0343	.013	48	.3365	.127	98	1.822	.689
51	.0018	.001	− 1	.0361	.014	49	.3493	.132	99	1.878	.710
−50	0.0020	0.001	± 0	0.0381	0.014	50	0.3626	0.137	100	1.936	0.732
49	.0021	.001	+ 1	.0401	.015	51	.3763	.142	101	1.994	.754
48	.0023	.001	2	.0423	.016	52	.3905	.147	102	2.055	.777
47	.0024	.001	3	.0445	.017	53	.4052	.153	103	2.117	.800
46	.0026	.001	4	.0468	.018	54	.4203	.159	104	2.181	.824
−45	0.0028	0.001	+ 5	0.0493	0.019	55	0.4359	0.165	105	2.246	0.849
44	.0029	.001	6	.0519	.020	56	.4521	.171	106	2.314	.875
43	.0031	.001	7	.0546	.021	57	.4687	.177	107	2.382	.900
42	.0033	.001	8	.0574	.022	58	.4859	.184	108	2.453	.927
41	.0036	.001	9	.0604	.023	59	.5037	.190	109	2.525	.954
−40	0.0038	0.001	+ 10	0.0635	0.024	60	0.5220	0.197	110	2.599	0.982
39	.0040	.002	11	.0667	.025	61	.5409	.204	111	2.676	1.012
38	.0043	.002	12	.0701	.027	62	.5604	.212	112	2.754	1.041
37	.0046	.002	13	.0736	.028	63	.5805	.219	113	2.833	1.071
36	.0049	.002	14	.0773	.029	64	.6013	.227	114	2.915	1.102
−35	0.0052	0.002	+15	0.0812	0.031	65	0.6226	0.235	115	2.999	1.134
34	.0055	.002	16	.0852	.032	66	.6447	.244	116	3.085	1.166
33	.0059	.002	17	.0895	.034	67	.6674	.252	117	3.173	1.199
32	.0062	.002	18	.0939	.035	68	.6909	.261	118	3.264	1.234
31	.0066	.003	19	.0985	.037	69	.7150	.270	119	3.356	1.269
−30	0.0070	0.003	+20	0.1033	0.039	70	0.7399	0.280	120	3.451	1.304
29	.0075	.003	21	.1084	.041	71	.7655	.289	121	3.548	1.341
28	.0080	.003	22	.1136	.043	72	.7919	.299	122	3.647	1.379
27	.0084	.003	23	.1191	.045	73	.8191	.310	123	3.749	1.417
26	.0090	.003	24	.1248	.047	74	.8471	.320	124	3.853	1.456
−25	0.0095	0.004	+25	0.1308	0.049	75	0.8760	0.331	125	3.960	1.497
24	.0101	.004	26	.1370	.052	76	.9056	.343	126	4.069	1.538
23	.0107	.004	27	.1435	.054	77	.9362	.354	127	4.180	1.580
22	.0113	.004	28	.1502	.057	78	.9677	.366	128	4.294	1.623
21	.0120	.005	29	.1573	.059	79	1.0001	.378	129	4.412	1.668
−20	0.0127	0.005	+30	0.1646	0.062	80	1.0334	0.391	130	4.531	1.713
19	.0135	.005	31	.1723	.065	81	1.0676	.404	131	4.654	1.759
18	.0143	.005	32	.1803	.068	82	1.1029	.417	132	4.779	1.806
17	.0151	.006	33	.1877	.071	83	1.1392	.431	133	4.907	1.855
16	.0160	.006	34	.1954	.074	84	1.1765	.445	134	5.038	1.904
−15	0.0169	0.006	+35	0.2034	0.077	85	1.2149	0.459	135	5.172	1.955
14	.0179	.007	36	.2117	.080	86	1.2543	.474	136	5.309	2.007
13	.0189	.007	37	.2202	.083	87	1.2949	.489	137	5.449	2.060
12	.0200	.008	38	.2291	.087	88	1.3365	.505	138	5.592	2.114
11	.0211	.008	39	.2382	.090	89	1.3794	.521	139	5.739	2.169
10	0.0223	0.008	40	0.2477	0.094	90	1.4234	0.538	140	5.889	2.226

* Values for temperatures less than 32° F. refer to vapor over ice.

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF AIR.

Humidity and pressure terms combined: $\frac{\delta}{\delta_0} = \frac{h}{29.921} = \frac{B - 0.378e}{29.921}$.

B = Barometric pressure in inches; e = Vapor pressure in inches.

h.	$\frac{h}{29.921}$.	Log $\frac{h}{29.921}$.	h.	$\frac{h}{29.291}$.	Log $\frac{h}{29.921}$.	h.	$\frac{h}{29.921}$.	Log $\frac{h}{29.921}$.
Inch's.		— 10	Inches.		— 10	Inches.		— 10
10.0	0.3342	9.52402	**15.0**	0.5013	9.70012	**20.0**	0.6684	9.82505
10.1	.3376	.52835	15.1	.5047	.70300	20.1	.6718	.82722
10.2	.3409	.53262	15.2	.5080	.70587	20.2	.6751	.82938
10.3	.3442	.53686	15.3	.5113	.70871	20.3	.6784	.83152
10.4	.3476	.54106	15.4	.5147	.71154	20.4	.6818	.83365
10.5	0.3509	9.54521	**15.5**	0.5180	9.71435	**20.5**	0.6851	9.83578
10.6	.3543	.54933	15.6	.5214	.71715	20.6	.6885	.83789
10.7	.3576	.55341	15.7	.5247	.71992	20.7	.6918	.83999
10.8	.3609	.55745	15.8	.5281	.72268	20.8	.6952	.84209
10.9	.3643	.56145	15.9	.5314	.72542	20.9	.6985	.84417
11.0	0.3676	9.56542	**16.0**	0.5347	9.72814	**21.0**	0.7018	9.84624
11.1	.3710	.56935	16.1	.5381	.73085	21.1	.7052	.84831
11.2	.3743	.57324	16.2	.5414	.73354	21.2	.7085	.85036
11.3	.3777	.57710	16.3	.5448	.73621	21.3	.7119	.85240
11.4	.3810	.58093	16.4	.5481	.73887	21.4	.7152	.85444
11.5	0.3843	9.58472	**16.5**	0.5515	9.74151	**21.5**	0.7186	9.85646
11.6	.3877	.58848	16.6	.5548	.74413	21.6	.7219	.85848
11.7	.3910	.59221	16.7	.5581	.74674	21.7	.7252	.86048
11.8	.3944	.59591	16.8	.5615	.74933	21.8	.7286	.86248
11.9	.3977	.59957	16.9	.5648	.75191	21.9	.7319	.86447
12.0	0.4011	9.60321	**17.0**	0.5682	9.75447	**22.0**	0.7353	9.86645
12.1	.4044	.60681	17.1	.5715	.75702	22.1	.7386	.86842
12.2	.4077	.61038	17.2	.5748	.75955	22.2	.7420	.87038
12.3	.4111	.61393	17.3	.5782	.76207	22.3	.7453	.87233
12.4	.4144	.61745	17.4	.5815	.76457	22.4	.7486	.87427
12.5	0.4178	9.62093	**17.5**	0.5849	9.76706	**22.5**	0.7520	9.87621
12.6	.4211	.62439	17.6	.5882	.76954	22.6	.7553	.87813
12.7	.4244	.62782	17.7	.5916	.77200	22.7	.7587	.88005
12.8	.4278	.63123	17.8	.5949	.77444	22.8	.7620	.88196
12.9	.4311	.63461	17.9	.5982	.77687	22.9	.7653	.88386
13.0	0.4345	9.63797	**18.0**	0.6016	9.77930	**23.0**	0.7687	9.88575
13.1	.4378	.64130	18.1	.6049	.78170	23.1	.7720	.88764
13.2	.4412	.64460	18.2	.6083	.78410	23.2	.7754	.88951
13.3	.4445	.64788	18.3	.6116	.78648	23.3	.7787	.89138
13.4	.4478	.65113	18.4	.6149	.78884	23.4	.7821	.89324
13.5	0.4512	9.65436	**18.5**	0.6183	9.79120	**23.5**	0.7854	9.89509
13.6	.4545	.65756	18.6	.6216	.79354	23.6	.7887	.89693
13.7	.4579	.66074	18.7	.6250	.79587	23.7	.7921	.89877
13.8	.4612	.66390	18.8	.6283	.79818	23.8	.7954	.90060
13.9	.4646	.66704	18.9	.6317	.80049	23.9	.7988	.90242
14.0	0.4679	9.67015	**19.0**	0.6350	9.80278	**24.0**	0.8021	9.90424
14.1	.4712	.67324	19.1	.6383	.80506	24.1	.8054	.90604
14.2	.4746	.67631	19.2	.6417	.80733	24.2	.8088	.90784
14.3	.4779	.67936	19.3	.6450	.80958	24.3	.8121	.90963
14.4	.4813	.68239	19.4	.6484	.81183	24.4	.8155	.91141
14.5	0.4846	9.68539	**19.5**	0.6517	9.81406	**24.5**	0.8188	9.91319
14.6	.4879	.68837	19.6	.6551	.81628	24.6	.8222	.91496
14.7	.4913	.69134	19.7	.6584	.81849	24.7	.8255	.91672
14.8	.4946	.69429	19.8	.6617	.82069	24.8	.8289	.91848
14.9	.4980	.69721	19.9	.6651	.82288	24.9	.8322	.92022

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF AIR.

Humidity and pressure terms combined: $\frac{\delta}{\delta_0} = \frac{h}{29.921} = \frac{B - 0.378e}{29.921}$.

B = Barometric pressure in inches; e = Vapor pressure in inches.

h.	$\frac{h}{29.921}$	Log $\frac{h}{29.921}$	h.	$\frac{h}{29.921}$	Log $\frac{h}{29.921}$	h.	$\frac{h}{29.921}$	Log $\frac{h}{29.921}$
Inches.		− 10	Inches.		− 10	Inches.		− 10
25.00	0.8355	9.92196	**27.25**	0.9107	9.95939	**29.50**	0.9859	9.99385
25.05	.8372	.92283	27.30	.9124	.96019	29.55	.9876	.99458
25.10	.8389	.92370	27.35	.9141	.96098	29.60	.9893	.99532
25.15	.8405	.92456	27.40	.9157	.96177	29.65	.9909	.99605
25.20	.8422	.92542	27.45	.9174	.96256	29.70	.9926	.99678
25.25	0.8439	9.92628	**27.50**	0.9191	9.96336	**29.75**	0.9943	9.99751
25.30	.8456	.92714	27.55	.9208	.96414	29.80	.9960	.99824
25.35	.8472	.92800	27.60	.9224	.96493	29.85	.9976	.99897
25.40	.8489	.92886	27.65	.9241	.96572	29.90	.9993	.99970
25.45	.8506	.92971	27.70	.9258	.96650	29.95	1.0010	0.00042
25.50	0.8522	9.93056	**27.75**	0.9274	9.96728	**30.00**	1.0026	0.00115
25.55	.8539	.93141	27.80	.9291	.96807	30.05	1.0043	.00187
25.60	.8556	.93226	27.85	.9308	.96885	30.10	1.0060	.00259
25.65	.8573	.93311	27.90	.9325	.96963	30.15	1.0076	.00331
25.70	.8589	.93396	27.95	.9341	.97040	30.20	1.0093	.00403
25.75	0.8606	9.93480	**28.00**	0.9358	9.97118	**30.25**	1.0110	0.00475
25.80	.8623	.93564	28.05	.9375	.97195	30.30	1.0127	.00547
25.85	.8639	.93648	28.10	.9391	.97273	30.35	1.0143	.00618
25.90	.8656	.93732	28.15	.9408	.97350	30.40	1.0160	.00690
25.95	.8673	.93816	28.20	.9425	.97427	30.45	1.0177	.00761
26.00	0.8690	9.93900	**28.25**	0.9441	9.97504	**30.50**	1.0193	0.00832
26.05	.8706	.93983	28.30	.9458	.97581	30.55	1.0210	.00903
26.10	.8723	.94066	28.35	.9475	.97657	30.60	1.0227	.00975
26.15	.8740	.94149	28.40	.9492	.97734	30.65	1.0244	.01045
26.20	.8756	.94233	28.45	.9508	.97810	30.70	1.0260	.01116
26.25	0.8773	9.94315	**28.50**	0.9525	9.97887	**30.75**	1.0277	0.01187
26.30	.8790	.94398	28.55	.9542	.97963	30.80	1.0294	.01257
26.35	.8806	.94480	28.60	.9558	.98039	30.85	1.0310	.01328
26.40	.8823	.94563	28.65	.9575	.98115	30.90	1.0327	.01398
26.45	.8840	.94645	28.70	.9592	.98191	30.95	1.0344	.01468
26.50	0.8857	9.94727	**28.75**	0.9609	9.98266	**31.00**	1.0361	0.01539
26.55	.8873	.94809	28.80	.9625	.98342	31.05	1.0377	.01608
26.60	.8890	.94891	28.85	.9642	.98417	31.10	1.0394	.01678
26.65	.8907	.94972	28.90	.9659	.98492	31.15	1.0411	.01748
26.70	.8924	.95054	28.95	.9675	.98567	31.20	1.0427	.01818
26.75	0.8940	9.95135	**29.00**	0.9692	9.98642	**31.25**	1.0444	0.01887
26.80	.8957	.95216	29.05	.9709	.98717	31.30	1.0461	.01957
26.85	.8974	.95297	29.10	.9726	.98792	31.35	1.0478	.02026
26.90	.8990	.95378	29.15	.9742	.98866	31.40	1.0494	.02095
26.95	.9007	.95458	29.20	.9759	.98941	31.45	1.0511	.02164
27.00	0.9024	9.95539	**29.25**	0.9776	9.99015	**31.50**	1.0528	0.02233
27.05	.9040	.95619	29.30	.9792	.99089	31 55	1.0544	.02302
27.10	.9057	.95699	29.35	.9809	.99163	31.60	1.0561	.02371
27.15	.9074	.95779	29.40	.9826	.99237	31.65	1.0578	.02439
27.20	.9091	.95859	29.45	.9843	.99311	31.70	1.0594	.02508

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF AIR.

Temperature term: $\delta_{t,\,760} = \dfrac{0.00129305}{1 + 0.003670\,t}$. Centigrade temperature.

1 cubic centimeter of dry air at the temperature 0° C. and pressure 760 mm., under the standard value of gravity and sea-level, weighs 0.00129305 gram.

t.	$\delta_{t,\,760}$	Log $\delta_{t,\,760}$	t.	$\delta_{t,\,760}$	Log $\delta_{t,\,760}$	t.	$\delta_{t,\,760}$	Log $\delta_{t,\,760}$
C.	0.00	— 10	C.	0.00	— 10	C.	0.00	— 10
−34°	14774	7.16950	**− 4°.5**	13148	7.11885	**18°.0**	12129	7.08383
−33	14712	.16768	− 4.0	13123	.11804	18.5	12108	8309
−32	14651	.16587	− 3.5	13099	.11723	19.0	12088	8234
−31	14590	.16407	− 3.0	13074	.11642	19.5	12067	8160
	0.00			0.00			0.00	
−30	14530	7.16227	**− 2.5**	13050	7.11562	**20.0**	12046	7.08085
−29	14471	.16049	− 2.0	13026	.11481	20.5	12026	8011
−28	14412	.15871	− 1.5	13002	.11401	21.0	12005	7937
−27	14353	.15693	− 1.0	12978	.11321	21.5	11985	7863
−26	14295	.15517	− 0.5	12954	.11241	22.0	11965	7789
	0.00			0.00			0.00	
−25	14237	7.15341	**0.0**	12931	7.11162	**22.5**	11944	7.07716
−24	14179	.15166	+ 0.5	12907	.11082	23.0	11924	7642
−23	14123	.14991	1.0	12884	.11006	23.5	11904	7569
−22	14066	.14818	1.5	12860	.10923	24.0	11884	7496
−21	14010	.14645	2.0	12836	.10844	24.5	11864	7422
	0.00			0.00			0.00	
−20.0	13955	7.14472	**2.5**	12813	7.10765	**25.0**	11844	7.07349
−19.5	13927	.14386	3.0	12790	.10686	25.5	11824	7276
−19.0	13900	.14301	3.5	12766	.10607	26.0	11804	7204
−18.5	13872	.14215	4.0	12744	.10529	26.5	11784	7131
−18.0	13845	.14130	4.5	12720	.10450	27.0	11765	7058
	0.00			0.00			0.00	
−17.5	13818	7.14044	**5.0**	12698	7.10372	**27.5**	11745	7.06986
−17.0	13791	.13959	5.5	12675	.10294	28.0	11726	6913
−16.5	13764	.13874	6.0	12652	.10216	28.5	11706	6841
−16.0	13737	.13790	6.5	12629	.10138	29.0	11687	6769
−15.5	13710	.13705	7.0	12607	.10069	29.5	11667	6697
	0.00			0.00			0.00	
−15.0	13684	7.13621	**7.5**	12584	7.09982	**30.0**	11648	7.06625
−14.5	13657	.13536	8.0	12562	9905	30.5	11629	6554
−14.0	13631	.13452	8.5	12539	9828	31.0	11610	6482
−13.5	13604	.13368	9.0	12517	9750	31.5	11591	6411
−13.0	13578	.13285	9.5	12495	9673	32.0	11572	6340
	0.00			0.00			0.00	
−12.5	13552	7.13201	**10.0**	12473	7.09596	**32.5**	11553	7.06268
−12.0	13526	.13117	10.5	12451	9519	33.0	11534	6197
−11.5	13500	.13034	11.0	12429	9443	33.5	11515	6126
−11.0	13473	.12951	11.5	12407	9366	34.0	11496	6055
−10.5	13449	.12868	12.0	12385	9290	34.5	11477	5984
	0.00			0.00			0.00	
−10.0	13423	7.12785	**12.5**	12363	7.09214	**35.0**	11459	7.05913
− 9.5	13398	.12703	13.0	12342	9137	35.5	11440	5843
− 9.0	13372	.12620	13.5	12320	9061	36.0	11421	5772
− 8.5	13347	.12538	14.0	12299	8986	36.5	11403	5702
− 8.0	13322	.12456	14.5	12277	8910	37.0	11385	5632
	0.00			0.00			0.00	
− 7.5	13297	7.12374	**15.0**	12256	7.08834	**37.5**	11366	7.05562
− 7.0	13271	.12292	15.5	12235	8759	38.0	11348	5492
− 6.5	13246	.12210	16.0	12213	8683	38.5	11330	5422
− 6.0	13222	.12128	16.5	12192	8608	39.0	11311	5352
− 5.5	13197	.12047	17.0	12171	8533	39.5	11293	5282
	0.00			0.00			0.00	
− 5.0	13172	7.11966	**17.5**	12150	7.08458	**40.0**	11275	7.05213

Table 98.

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF AIR.

Temperature term. (*Continued.*)

t.	$\delta_{t,\,760}$	Log $\delta_{t,\,760}$	t.	$\delta_{t,\,760}$	Log $\delta_{t,\,760}$	t.	$\delta_{t,\,760}$	Log $\delta_{t,\,760}$
C.	0.00	−10	C.	0.00	−10	C.	0.00	−10
40°	11275	7.05213	50°	10926	7.03845	60°	10597	7.02518
41	11239	.05074	51	10892	.03710	61	10565	.02388
42	11204	.04936	52	10858	.03576	62	10534	.02258
43	11168	.04798	53	10825	.03443	63	10502	.02128
44	11133	.04660	54	10792	.03309	64	10471	.01999
	0.00			0.00			0.00	
45	11098	7.04523	55	10759	7.03177	65	10440	7.01870
46	11063	.04387	56	10726	.03044	66	10409	.01742
47	11028	.04251	57	10694	.02912	67	10379	.01614
48	10994	.04115	58	10661	.02780	68	10348	.01486
49	10960	.03980	59	10629	.02649	69	10318	.01358

Table 99.

Humidity term : Values of 0.378 *e*. Auxiliary to Table 100.
e = Vapor pressure in mm. (See Tables 71 and 72.)

Dew-point.	*e* Vapor Pressure (Ice).	0.378 *e*	Dew-point.	*e* Vapor Pressure (Water).	0.378 *e*	Dew-point.	*e* Vapor Pressure (Water).	0.378 *e*
C.	mm.	mm.	C.	mm.	mm.	C.	mm.	mm.
−50	0.029	0.01	0°	4.580	1.73	30°	31.860	12.04
−45	0.054	0.02	1	4.924	1.86	31	33.735	12.75
−40	0.096	0.04	2	5.291	2.00	32	35.705	13.50
−35	0.169	0.06	3	5.682	2.15	33	37.775	14.28
−30	0.288	0.11	4	6.098	2.31	34	39.947	15.10
−25	0.480	0.18	5	6.541	2.47	35	42.227	15.96
24	0.530	0.20	6	7.012	2.66	36	44.619	16.87
23	0.585	0.22	7	7.513	2.84	37	47.127	17.81
22	0.646	0.24	8	8.045	3.04	38	49.756	18.81
21	0.712	0.27	9	8.610	3.25	39	52.510	19.85
−20	0.783	0.30	10	9.210	3.48	40	55.396	20.94
19	0.862	0.33	11	9.846	3.72	41	58.417	22.08
18	0.947	0.36	12	10.521	3.98	42	61.580	23.28
17	1.041	0.39	13	11.235	4.25	43	64.889	24.53
16	1.142	0.43	14	11.992	4.53	44	68.350	25.84
−15	1.252	0.47	15	12.794	4.84	45	71.968	27.20
14	1.373	0.52	16	13.642	5.16	46	75.751	28.63
13	1.503	0.57	17	14.539	5.50	47	79.703	30.13
12	1.644	0.62	18	15.487	5.85	48	83.830	31.69
11	1.798	0.68	19	16.489	6.23	49	88.140	33.32
−10	1.964	0.74	20	17.548	6.63	50	92.64	35.02
9	2.144	0.81	21	18.665	7.06	51	97.33	36.79
8	2.340	0.88	22	19.844	7.50	52	102.23	38.64
7	2.550	0.96	23	21.087	7.97	53	107.33	40.57
6	2.778	1.05	24	22.398	8.47	54	112.66	42.59
−5	3.025	1.14	25	23.780	8.99	55	118.20	44.68
4	3.291	1.24	26	25.235	9.54	56	123.98	46.86
3	3.578	1.35	27	26.767	10.12	57	130.00	49.14
2	3.887	1.47	28	28.380	10.73	58	136.26	51.51
1	4.220	1.60	29	30.076	11.37	59	142.78	53.97
0	4.580	1.73	30	31.860	12.04	60	149.57	56.54

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF AIR.

Humidity and pressure terms combined : $\frac{\delta}{\delta_0} = \frac{h}{760} = \frac{B - 0.378e}{760}$.

B = Barometric pressure in mm. ; e = Vapor pressure in mm.

h.	$\frac{h}{760}$.	Log $\frac{h}{760}$.	h.	$\frac{h}{760}$.	Log $\frac{h}{760}$.	h.	$\frac{h}{760}$.	Log $\frac{h}{760}$.
mm.		— 10	mm.		— 10	mm.		— 10
300	0.3947	9.59631	**400**	0.5263	9.72125	**450**	0.5921	9.77240
302	.3974	.59919	401	.5276	.72233	451	.5934	.77336
304	.4000	.60206	402	.5289	.72341	452	.5947	.77432
306	.4026	.60491	403	.5303	.72449	453	.5961	.77528
308	.4053	.60774	404	.5316	.72557	454	.5974	.77624
310	0.4079	9.61055	**405**	0.5329	9.72664	**455**	0.5987	9.77720
312	.4105	.61334	406	.5342	.72771	456	.6000	.77815
314	.4132	.61612	407	.5355	.72878	457	.6013	.77910
316	.4158	.61887	408	.5369	.72985	458	.6026	.78005
318	.4184	.62161	409	.5382	.73091	459	.6040	.78100
320	0.4211	9.62434	**410**	0.5395	9.73197	**460**	0.6053	9.78194
322	.4237	.62704	411	.5408	.73303	461	.6066	.78289
324	.4263	.62973	412	.5421	.73408	462	.6079	.78383
326	.4289	.63240	413	.5434	.73514	463	.6092	.78477
328	.4316	.63506	414	.5447	.73619	464	.6105	.78570
330	0.4342	9.63770	**415**	0.5461	9.73723	**465**	0.6118	9.78664
332	.4368	.64032	416	.5474	.73828	466	.6132	.78757
334	.4395	.64293	417	.5487	.73932	467	.6145	.78850
336	.4421	.64552	418	.5500	.74036	468	.6158	.78943
338	.4447	.64810	419	.5513	.74140	469	.6171	.79036
340	0.4474	9.65066	**420**	0.5526	9.74244	**470**	0.6184	9.79128
342	.4500	.65321	421	.5540	.74347	471	.6197	.79221
344	.4526	.65574	422	.5553	.74450	472	.6210	.79313
346	.4553	.65826	423	.5566	.74553	473	.6224	.79405
348	.4579	.66076	424	.5579	.74655	474	.6237	.79496
350	0.4605	9.66325	**425**	0.5592	9.74758	**475**	0.6250	9.79588
352	.4632	.66573	426	.5605	.74860	476	.6263	.79679
354	.4658	.66819	427	.5618	.74961	477	.6276	.79770
356	.4684	.67064	428	.5632	.75063	478	.6289	.79861
358	.4711	.67307	429	.5645	.75164	479	.6303	.79952
360	0.4737	9.67549	**430**	0.5658	9.75265	**480**	0.6316	9.80043
362	.4763	.67790	431	.5671	.75366	481	.6329	.80133
364	.4789	.68029	432	.5684	.75467	482	.6342	.80223
366	.4816	.68267	433	.5697	.75567	483	.6355	.80313
368	.4842	.68503	434	.5711	.75668	484	.6368	.80403
370	0.4868	9.68739	**435**	0.5724	9.75768	**485**	0.6382	9.80493
372	.4895	.68973	436	.5737	.75867	486	.6395	.80582
374	.4921	.69206	437	.5750	.75967	487	.6408	.80672
376	.4947	.69437	438	.5763	.76066	488	.6421	.80761
378	.4974	.69668	439	.5776	.76165	489	.6434	.80850
380	0.5000	9.69897	**440**	0.5790	9.76264	**490**	0.6447	9.80938
382	.5026	.70125	441	.5803	.76362	491	.6461	.81027
384	.5053	.70352	442	.5816	.76461	492	.6474	.81115
386	.5079	.70577	443	.5829	.76559	493	.6487	.81203
388	.5105	.70802	444	.5842	.76657	494	.6500	.81291
390	0.5132	9.71025	**445**	0.5855	9.76755	**495**	0.6513	9.81379
392	.5158	.71247	446	.5868	.76852	496	.6526	.81467
394	.5184	.71468	447	.5882	.76949	497	.6540	.81556
396	.5211	.71688	448	.5895	.77046	498	.6553	.81642
398	.5237	.71907	449	.5908	.77143	499	.6566	.81729

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF AIR.

Humidity and pressure terms combined : $\frac{\delta}{\delta_0} = \frac{h}{760} = \frac{B - 0.378e}{760}$.

B = Barometric pressure in mm. ; e = Vapor pressure in mm.

h.	$\frac{h}{760}$.	Log $\frac{h}{760}$.	h.	$\frac{h}{760}$.	Log $\frac{h}{760}$.	h.	$\frac{h}{760}$.	Log $\frac{h}{760}$.
mm.		− 10	mm.		− 10	mm.		− 10
500	0.6579	9.81816	**550**	0.7237	9.85955	**600**	0.7895	9.89734
501	.6592	.81902	551	.7250	.86034	601	.7908	.89806
502	.6605	.81989	552	.7263	.86112	602	.7921	.89878
503	.6618	.82075	553	.7276	.86191	603	.7934	.89950
504	.6632	.82162	554	.7290	.86270	604	.7947	.90022
505	0.6645	9.82248	**555**	0.7303	9.86348	**605**	0.7961	9.90094
506	.6658	.82334	556	.7316	.86426	606	.7974	.90166
507	.6671	.82419	557	.7329	.86504	607	.7987	.90238
508	.6684	.82505	558	.7342	.86582	608	.8000	.90309
509	.6697	.82590	559	.7355	.86660	609	.8013	.90380
510	0.6711	9.82676	**560**	0.7368	9.86737	**610**	0.8026	9.90452
511	.6724	.82761	561	.7382	.86815	611	.8040	.90523
512	.6737	.82846	562	.7395	.86892	612	.8053	.90594
513	.6750	.82930	563	.7408	.86969	613	.8066	.90665
514	.6763	.83015	564	.7421	.87046	614	.8079	.90735
515	0.6776	9.83099	**565**	0.7434	9.87123	**615**	0.8092	9.90806
516	.6789	.83184	566	.7447	.87200	616	.8105	.90877
517	.6803	.83268	567	.7461	.87277	617	.8118	.90947
518	.6816	.83352	568	.7474	.87353	618	.8132	.91017
519	.6829	.83435	569	.7487	.87430	619	.8145	.91088
520	0.6842	9.83519	**570**	0.7500	9.87506	**620**	0.8158	9.91158
521	.6855	.83602	571	.7513	.87582	621	.8171	.91228
522	.6869	.83686	572	.7526	.87658	622	.8184	.91298
523	.6882	.83769	573	.7540	.87734	623	.8197	.91367
524	.6895	.83852	574	.7553	.87810	624	.8211	.91437
525	0.6908	9.83934	**575**	0.7566	9.87885	**625**	0.8224	9.91507
526	.6921	.84017	576	.7579	.87961	626	.8237	.91576
527	.6934	.84100	577	.7592	.88036	627	.8250	.91645
528	.6947	.84182	578	.7605	.88111	628	.8263	.91715
529	.6961	.84264	579	.7618	.88186	629	.8276	.91784
530	0.6974	9.84346	**580**	0.7632	9.88261	**630**	0.8289	9.91853
531	.6987	.84428	581	.7645	.88336	631	.8303	.91922
532	.7000	.84510	582	.7658	.88411	632	.8316	.91990
533	.7013	.84591	583	.7671	.88486	633	.8329	.92059
534	.7026	.84673	584	.7684	.88560	634	.8342	.92128
535	0.7040	9.84754	**585**	0.7697	9.88634	**635**	0.8355	9.92196
536	.7053	.84835	586	.7711	.88708	636	.8368	.92264
537	.7066	.84916	587	.7724	.88782	637	.8382	.92332
538	.7079	.84997	588	.7737	.88856	638	.8395	.92401
539	.7092	.85078	589	.7750	.88930	639	.8408	.92469
540	0.7105	9.85158	**590**	0.7763	9.89004	**640**	0.8421	9.92537
541	.7118	.85238	591	.7776	.89077	641	.8434	.92604
542	.7132	.85318	592	.7789	.89151	642	.8447	.92672
543	.7145	.85399	593	.7803	.89224	643	.8461	.92740
544	.7158	.85478	594	.7816	.89297	644	.8474	.92807
545	0.7171	9.85558	**595**	0.7829	9.89370	**645**	0.8487	9.92875
546	.7184	.85638	596	.7842	.89443	646	.8500	.92942
547	.7197	.85717	597	.7855	.89516	647	.8513	.93009
548	.7211	.85797	598	.7868	.89589	648	.8526	.93076
549	.7224	.85876	599	.7882	.89662	649	.8539	.93143

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF AIR.

Humidity and pressure terms combined: $\frac{\delta}{\delta_0} = \frac{h}{760} = \frac{B - 0.378e}{760}$.

B = Barometric pressure in mm.; e = Vapor pressure in mm.

h.	h/760.	Log h/760.	h.	h/760.	Log h/760.	h.	h/760.	Log h/760.
mm.		− 10	mm.		− 10	mm.		− 10
650	0.8553	9.93210	**700**	0.9211	9.96428	**750**	0.9868	9.99425
651	.8566	.93277	701	.9224	.96490	751	.9882	.99483
652	.8579	.93341	702	.9237	.96552	752	.9895	.99540
653	.8592	.93410	703	.9250	.96614	753	.9908	.99598
654	.8605	.93476	704	.9263	.96676	754	.9921	.99656
655	0.8618	9.93543	**705**	0.9276	9.96738	**755**	0.9934	9.99713
656	.8632	.93609	706	.9289	.96799	756	.9947	.99771
657	.8645	.93675	707	.9303	.96860	757	.9961	.99828
658	.8658	.93741	708	.9316	.96922	758	.9974	.99886
659	.8671	.93807	709	.9329	.96983	759	.9987	.99943
660	0.8684	9.93873	**710**	0.9342	9.97044	**760**	1.0000	0.00000
661	.8697	.93939	711	.9355	.97106	761	.0013	.00057
662	.8711	.94004	712	.9368	.97167	762	.0026	.00114
663	.8724	.94070	713	.9382	.97228	763	.0039	.00171
664	.8737	.94135	714	.9395	.97288	764	.0053	.00228
665	0.8750	9.94201	**715**	0.9408	9.97349	**765**	1.0066	0.00285
666	.8763	.94266	716	.9421	.97410	766	.0079	.00342
667	.8776	.94331	717	.9434	.97470	767	.0092	.00398
668	.8790	.94396	718	.9447	.97531	768	.0105	.00455
669	.8803	.94461	719	.9461	.97592	769	.0118	.00511
670	0.8816	9.94526	**720**	0.9474	9.97652	**770**	1.0132	0.00568
671	.8829	.94591	721	.9487	.97712	771	.0145	.00624
672	.8842	.94656	722	.9500	.97772	772	.0158	.00680
673	.8855	.94720	723	.9513	.97832	773	.0171	.00736
674	.8869	.94785	724	.9526	.97892	774	.0184	.00793
675	0.8882	9.94849	**725**	0.9539	9.97952	**775**	1.0197	0.00849
676	.8895	.94913	726	.9553	.98012	776	.0211	.00905
677	.8908	.94978	727	.9566	.98072	777	.0224	.00961
678	.8921	.95042	728	.9579	.98132	778	.0237	.01017
679	.8934	.95106	729	.9592	.98191	779	.0250	.01072
680	0.8947	9.95170	**730**	0.9605	9.98250	**780**	1.0263	0.01128
681	.8960	.95233	731	.9618	.98310	781	.0276	.01184
682	.8974	.95297	732	.9632	.98370	782	.0289	.01239
683	.8987	.95361	733	.9645	.98429	783	.0303	.01295
684	.9000	.95424	734	.9658	.98488	784	.0316	.01350
685	0.9013	9.95488	**735**	0.9671	9.98547	**785**	1.0329	0.01406
686	.9026	.95551	736	.9684	.98606	786	.0342	.01461
687	.9039	.95614	737	.9697	.98665	787	.0355	.01516
688	.9053	.95677	738	.9711	.98724	788	.0368	.01571
689	.9066	.95740	739	.9724	.98783	789	.0382	.01626
690	0.9079	9.95804	**740**	0.9737	9.98842	**790**	1.0395	0.01681
691	.9092	.95866	741	.9750	.98900	791	.0408	.01736
692	.9105	.95929	742	.9763	.98959	792	.0421	.01791
693	.9118	.95992	743	.9776	.99018	793	.0434	.01846
694	.9132	.96054	744	.9789	.99076	794	.0447	.01901
695	0.9145	9.96117	**745**	0.9803	9.99134	**795**	1.0461	0.01955
696	.9158	.96180	746	.9816	.99192	796	.0474	.02010
697	.9171	.96242	747	.9829	.99251	797	.0487	.02064
698	.9184	.96304	748	.9842	.99309	798	.0500	.02119
699	.9197	.96366	749	.9855	.99367	799	.0513	.02173

ATMOSPHERIC WATER-VAPOR LINES IN THE VISIBLE SPECTRUM.

Wave lengths in Ångströms.	Number of lines.	Intensity.	Wave lengths in Ångströms.	Number of lines.	Intensity.
5292.3–5296.0	4?	00	5915.146		1
5861.8–5870.0	7	00	5915.650		1
5870.864		1	5915.840		1
5871.3–5876.0	8	00	5916.0–5918.2	6	00
5876.338		1	5918.635		4
5876.6–5879.4	4	00	5919.175		000
5879.820		1	5919.276		5
5879.945		1	5919.860		7
5880.7–5881.0	2	0	5920.395		00
5881.147		1	5920.776		1
5881.320		0	5921.3–5922.6	3	0
5882.084		1	5922.735		2
5882.2–5883.2	3	0	5922.9–5923.4	2	0
5884.120		5	5923.865		1
5884.4–5885.8	3	00	5924.040		2
5886.193		5	5924.490		4
5886.560		1	5924.975		000
5886.6–5886.9	2	0	5925.220		2
5887.445		5	5926.835		000
5887.880		3	5928.510		2
5888.056		00	5929.0–5931.2	5	00
5888.920		2	5932.306		5
5889.303		00	5932.998		2
5889.855		3	5933.2–5940.2	14	000
5890.100		2	5940.640		1
5890.4–5890.9	2	00	5941.091		00
5891.398		1	5941.290		5
5891.720		0	5941.470		000
5891.878		4	5941.845		2
5892.608		3	5942.500		000
5893.268		0	5942.635		1
5893.725		1	5942.789		3
5894.6–5896.6	5	0	5944.530		1
5896.710		1	5944.945		1
5897.047		2	5945.4–5945.5	2	00
5897.3–5898.2	4	00	5945.865		1
5898.378		4	5946.223		3
5898.6–5899.0	2	00	5946.864		000
5899.215		2	5947.062		1
5899.752		00	5947.283		2
5900.135		2	5947.6–5949.2	4	000
5900.260		4	5949.390		2
5900.6–5901.5	3	00	5949.8–5954.6	11	00
5901.682		6	5955.170		1
5902.238		000	5956.0–5956.6	4	000
5902.363		1	5958.098		1
5903.035		000	5958.460		1
5903.748		1	5961.6–5966.6	5	00
5903.9–5907.7	13	00	5966.885		1
5908.070		1	5967.540		00
5908.425		1	5968.058		2
5909.213		3	5968.280		000
5909.668		00	5968.495		2
5910.398		1	5969.2–5970.9	3	00
5910.5–5910.9	3	00	5971.557		1
5910.987		2	5975.330		1
5911.1–5912.9	7	00	5976.694		00
5913.212		3	5977.252		1
5914.430		6	5977.6–6479.7	73	000

TABLE 101.

ATMOSPHERIC WATER-VAPOR LINES IN THE VISIBLE SPECTRUM.

Wave lengths in Ångströms.	Number of lines.	Intensity.	Wave lengths in Ångströms.	Number of lines.	Intensity.
6480.285		1	6941.260		000
6480.4–6483.3	4	0000	6941.475		1
6483.468		1	6942.402		2
6483.6–6490.9	11	000	6942.630		1
6491.015		1	6944.060		3
6493.1–6493.5	2	00	6947.782		5
6494.725		1	6947.863		00
6496.082		2	6949.240		1
6497.8–6514.5	7	00	6949.310		1
6514.956		2	6951.010		1
6516.080		000	6953.828		1
6516.750		1	6954.0–6955.9	2	00
6516.855		2	6956.660 }		4
6517.3–6519.4	3	00	6956.746 }		1
6519.682		1	6959.704		3
6522.1–6523.9	4	0000	6961.515		4
6524.080		1	6964.812		1
6526.0–6530.8	2	000	6971.135		0
6532.595		1	6977.715		3
6534.172		2	6981.722		1
6534.8–6542.6	3	000	6985.220		0
6544.140		2	6986.833		3
6546.0–6547.9	2	00	6988.125		0
6548.855		1	6989.237		3
6552.865		1	6990.632		1
6554.025		00 ?	6993.776		2
6556.308		1	6994.360		1
6557.4–6558.4	2	0	6998.978		0
6560.800		1 ?	6999.223		2
6563.7–6569.0	4	00	7004.575		0
6572.330		1	7004.995		2
6575.085		1	7005.3–7010.1	2	0
6580.4–6929.6	11	000	7011.590		2
6934.075		2	7016.330		1
6937.957		2	7016.675		3
6938.520		1	7023.770		2
6939.875		2	7027.213		0
6940.436		2	7027.740		2

TABLE 102.

ATMOSPHERIC WATER-VAPOR BANDS IN THE INFRA-RED SPECTRUM.

Name of band.	Wave-lengths.	Transmission coefficient a.
	μ	
α	0.718	0.91
	0.814	0.92
	0.896	0.90
ρ	0.933	0.63
σ	0.945	0.69
τ	0.974	0.91
Φ_1	1.119	0.54
Φ_2	1.134	0.60
	1.172	0.92
In Ψ	1.331	0.74
In Ψ	1.451	0.36
Ψ_1	1.469	0.55

The infra-red bands may perhaps be composed of numerous fine lines which the bolographic apparatus does not separately distinguish.

Wide bands of very great atmospheric water-vapor absorption are found in the infra-red spectrum as follows:

Name.	Wave lengths.	Absorption at Washington.
	μ μ	
$\rho\sigma\tau$	0.926–0.978	0.3 to 0.5
Φ	1.095–1.165	0.5 to 0.8
Ψ	1.319–1.498	0.7 to 1.0
Ω	1.762–1.977	0.9 to 1.0
X	2.520–2.845	1.0 { Partly CO_2 }

See Vol. I, *Annals Astrophysical Observatory*, Smithsonian Institution.

TRANSMISSION PERCENTAGES OF RADIATION THROUGH MOIST AIR.

Range of Wave-lengths.		PRECIPITABLE WATER IN CENTIMETERS.												
μ	μ	.001	.003	.006	.01	.03	.06	.10	.25	.50	1.0	2.0	6.0	10.0
0.75 to	1.0				100	99	99	98	97	95	93	90	83	78
1.0	1.25				99	99	98	97	95	92	89	85	74	69
1.25	1.5				96	92	84	80	66	57	51	44	31	28
1.5	2.0				98	97	94	88	79	73	70	66	60	57
* 2.	3.	96	92	87	84	77	70	64						
3.	4.	95	88	84	78	72	66	63						
* 4.	5.	92	83	76	71	65	60	53						
5.	6.	95	82	75	68	56	51	47	35					
6.	7.	85	54	50	31	24	8	4	3	2	0	0	0	0
7.	8.	94	84	76	68	57	46	35	16	10	2	0	0	0
8.	9.	100	100	100	99	98	96	94	65					
† 9.	10.	100	100	100	100	100	100	100	100	100	100	100		
†10.	11.	100	100	100	100	100	100	100	100	100	100	100		
11.	12.	100	100	100	100	100	99	98	96	95	93			
12.	13.	100	100	100	100	99	99	97	86	82				
*13.	14.	100	100	100	99	97	94	90	80	60				
*14.	15.			96	93	80	75	50	15	0	0	0	0	0
*15.	16.					70	55	40	0	0	0	0	0	0
16.	17.						50	20	0	0	0	0	0	0
17.	18.						25	10	0	0	0	0	0	0
18.		0	0	0	0	0	0	0	0	0	0	0	0	0

* These places require multiplication by the following factors to allow for losses in CO_2 gas. Under average sea-level outdoor conditions the CO_2 (partial pressure = 0.0003 atmos.) amounts to about 0.6 grams per cu.m. Paschen gives 3 times as much for indoor conditions.

2μ to 3μ, for 2 grams in m^2 path (95); for 140 grams in m^2 path (93);
4 " 5 , " " " " " " (93); " " " " " " (70); more CO_2 no further effect;
13 " 14 , slight allowance to be made;
14 " 15 , 80 grams in m^2 path reduces energy to zero;
15 " 16 , " " " " " " " " " .

† These places require multiplication by 0.90 and 0.70 respectively for one air mass and 0.85 and 0.65 for two air masses to allow for ozone absorption when the radiation comes from a celestial body.

F. Paschen gives (*Annalen d. Physik. u. Chemie*, 51, p. 14, 1894) the absorption of the radiation from a blackened strip at 500° C. by a layer 33 centimeters thick of water vapor at 100° *C.* and atmospheric pressure as follows:

Wave length............	μ μ 2.20–3.10	μ μ 5.33–7.67	μ μ 7.67–10 (?)
Percentage absorption...	80	94	94–13

The following table, due to Rubens and Aschkinass (*Annalen d. Physik u. Chemie*, 64, p. 598, 1898), gives the absorption of radiation from a zircon burner by a layer 75 centimeters thick of water vapor saturated at 100° *C.* This amount of vapor is about equivalent to a layer of water 0.45 millimeter thick or to 1.5% of the water in a total vertical atmospheric column whose dew-point at sea-level is 10° *C.* The region of spectrum examined includes most of the region of terrestrial radiation.

Wave length...........	μ 7.0	μ 8.0	μ μ 9.0–12.0	μ 12.4	μ 12.8	μ 13.4	μ 14.0
Percentage absorption...	75	40	6	20	13	28	22
Wave length...........	μ 14.3	μ 15.0	μ 15.7	μ 16.0	μ 17.5	μ 18.3	μ 20.0
Percentage absorption...	43	35	65	52	88	80	100

TABLE 104.

INTERNATIONAL METEOROLOGICAL SYMBOLS.

The International Meteorological Symbols were adopted at the Vienna meteorological congress of 1873. A few additions and modifications have been made at subsequent international meteorological meetings. The forms of these symbols are more or less flexible. Those shown in the accompanying table are the forms which have generally been used in the United States, and with two exceptions ("wet fog" and "zodiacal light") are identical with those used by the Prussian Meteorological Institute and given in the German editions of the International Meteorological Codex. The principal variants found in the meteorological publications of the different countries are given in the *Monthly Weather Review* (Wash., D.C.), May, 1916, p. 268.

Exponents. — An exponent added to a symbol indicates the degree of intensity, ranging from $^{\circ}$ weak (light, etc.) to ^{2} strong (heavy, etc.). Thus, ●$^{\circ}$, light rain; ●^{2}, heavy rain. German and French observers use the exponent ^{1} to denote medium intensity, in accordance with the German and French versions of the report of the Vienna congress, and the German editions of the Codex. The English version of the above-mentioned report and the English edition of the Codex provide for the use of only two exponents, $^{\circ}$ and ^{2}; hence in English-speaking countries the omission of the exponent indicates medium intensity.

Time of occurrence. — When hours of occurrence are added to symbols, the abbreviation *a* is used for a.m., and *p* for p.m. Thus, ● 10a — 4p denotes "rain from 10 a.m. to 4 p.m." 12*a* = noon; 12*p* = midnight. The abbreviation *n* means "during night." Stations taking tri-daily observations may use *a* to mean between the first and second observation; *p*, between the second and third; and *n*, between the third and the first.

For further information concerning the International Symbols and other meteorological symbols, see "Meteorological Symbols," by C. Fitzhugh Talman, *Monthly Weather Review* (Wash., D.C.), May, 1916, pp. 265–274.

INTERNATIONAL METEOROLOGICAL SYMBOLS.

Symbol.	Meaning.	Remarks.
	Rain.	
	Snow.	
	Thunderstorm.	Thunder and lightning.
T	Thunder.	Without lightning.
	Lightning.	Without thunder; "heat-lightning."
▲	Hail.*	
△	Graupel.	Sometimes called "soft hail." French, *grésil.* Resembles little snow-pellets.
≡	Fog.	
	Ground fog.	Not exceeding the height of a man.
	Wet fog.	One which wets exposed surfaces.
	Hoarfrost.	
	Dew.	
V	Rime.	A rough frost deposit from fog.
	Glaze; Glazed frost.†	Ice coating due to rain, "ice-storm." In America often called "sleet."
	Driving snow.	Ger., *Schneegestöber;* Fr., *bourrasque de neige.*
←	Ice-crystals.	Ice-needles sometimes seen floating or slowly falling in the air in clear, cold weather.
	Snow on ground.	Ground near station more than half covered.
	Gale.	Wind of force 8–12, Beaufort scale. (Rept. Int. Met'l Comm., Berlin, 1910, English ed., p. 17.) Formerly used for "strong wind." A 3-barbed arrow is introduced in the 2d German ed. of the Int. Met'l Codex to denote "strong wind," but no authority is cited. According to the Observer's Handbook of the British Met'l Office "the number of barbs on the arrow may conveniently be made to represent the strongest wind force noted," but there is no international sanction for such variants.
⊙	Sunshine.	In German edition of Int. Met'l Codex, but has never been definitely recognized by the international organization. (See Rept. Int. Met'l Comm., Southport, 1903, Engl. ed., p. 19 and 101.) Widely used in German and Austrian publications.
⊕	Solar halo.	
⦶	Solar corona.	
	Lunar halo.	
	Lunar corona.	
⌒	Rainbow.	
	Aurora.	
	Zodiacal light.	
∞	Haze.	Due to fine dust, or to the disturbance of atmospheric transparency by air-currents of different densities ("optical turbidity"), and not to water-drops. In practice, this is often difficult to distinguish from light fog (≡°), or "mist" of British observers. Prussian and Austrian observers underscore this symbol ($\underline{\infty}$) to denote a definitely *smoky* atmosphere ("Moorrauch").

* True hail, which occurs chiefly with summer thunderstorms, should be distinguished from the snowy pellets, like miniature snowballs, known as *graupel*, or *soft hail* (△); also from the small particles of clear ice, called *sleet* by the U.S. Weather Bureau, for which there is no international symbol. On the history of the word *sleet* see *Monthly Weather Review*, May, 1916, pp. 281–286.

† *Glaze* is the official term in the United States; *glazed frost* in Great Britain.

INTERNATIONAL CLOUD CLASSIFICATION.

The International Conference of Meteorologists held at Munich in 1891 recommended the following classification of clouds, elaborated by Messrs. Abercromby and Hildebrandsson:

a. Detached clouds with rounded upper outlines (most frequent in dry weather).
b. Clouds of great horizontal extent suggesting a layer or sheet (wet weather).

A. **Upper Clouds,** average altitude 9000^m.

a. 1. *Cirrus.*
b. 2. *Cirro-stratus.*

B. **Intermediate Clouds,** between 3000^m and 7000^m.

a. { 3. *Cirro-cumulus.*
 4. *Alto-cumulus.*
b. 5. *Alto-stratus.*

C. **Lower Clouds,** below 2000^m.

a. 6. *Strato-cumulus.*
b. 7. *Nimbus.*

D. **Clouds of diurnal ascending currents.**

a. 8. *Cumulus;* top 1800^m; base 1400^m.
b. 9. *Cumulo-nimbus;* top 3000^m to 8000^m; base 1400^m.

E. **High Fogs,** under 1000^m.

10. *Stratus.*

DEFINITIONS AND DESCRIPTIONS OF CLOUD FORMS.

1. **Cirrus (Ci.).** — *Detached clouds of delicate and fibrous appearance, often showing a feather-like structure, generally of a whitish color.* Cirrus clouds take the most varied shapes, such as isolated tufts, thin filaments on a blue sky, threads spreading out in the form of feathers, curved filaments ending in tufts, sometimes called *Cirrus uncinus*, etc.; they are sometimes arranged in parallel belts which cross a portion of the sky in a great circle, and by an effect of perspective appear to converge towards a point on the horizon, or, if sufficiently extended, towards the opposite point also. (Ci.-St. and Ci.-Cu., etc., are also sometimes arranged in similar bands.)

2. **Cirro-stratus (Ci.-St.).** — *A thin, whitish sheet of clouds* sometimes covering the sky completely and giving it only a milky appearance (it is then called *Cirro-nebula*), at other times presenting, more or less distinctly, a formation like a tangled web. This sheet often produces halos around the Sun and Moon.

3. **Cirro-cumulus (Ci.-Cu.). Mackerel sky.** — *Small globular masses or white flakes without shadows, or showing very slight shadows, arranged in groups and often in lines.*

4. **Alto-stratus (A.-St.).** — *A thick sheet of a gray or bluish color*, sometimes forming a compact mass of dark gray color and fibrous structure. At other times the sheet is thin, resembling thick Ci.-St., and through it the Sun or the Moon may be seen dimly gleaming as through ground glass. This form exhibits all changes peculiar to Ci.-St., but from measurements its average altitude is found to be about one half that of Ci.-St.

5. **Alto-cumulus (A.-Cu.).** — *Largish globular masses, white or grayish, partially shaded, arranged in groups or lines, and often so closely packed that their edges appear confused.* The detached masses are generally larger and more compact (resembling St.-Cu.) at the center of the group, but the thickness of the layer varies. At times the masses spread themselves out and assume the appearance of small waves or thin slightly curved plates. At the margin they form into finer flakes (resembling Ci.-Cu.). They often spread themselves out in lines in one or two directions.

6. **Strato-cumulus (St.-Cu.).** — *Large globular masses or rolls of dark clouds often covering the whole sky, especially in winter.* Generally St.-Cu. presents the appearance of a gray layer irregularly broken up into masses of which the edge is often formed of smaller masses, often of wavy appearance resembling A.-Cu. Sometimes this cloud-form presents the characteristic appearance of great rolls arranged in parallel lines and pressed close up against one another. In their centers these rolls are of a dark color. Blue sky may be seen through the intervening spaces which are of a much lighter color. (Roll-cumulus in England, Wulst-cumulus in Germany.) St.-Cu. clouds may be distinguished from Nb. by their globular or rolled appearance, and by the fact that they are not generally associated with rain.

7. **Nimbus (Nb.), Rain Clouds.** — *A thick layer of dark clouds, without shape and with ragged edges*, from which *steady* rain or snow usually falls. Through the openings in these clouds an upper layer of Ci.-St. or A.-St. may be seen almost invariably. If a layer of Nb.

separates up in a strong wind into shreds, or if small loose clouds are visible floating underneath a large Nb., the cloud may be described as *Fracto-nimbus* (Fr.-Nb.) (" Scud " of sailors).

8. **Cumulus (Cu.), Wool pack Clouds.** — *Thick clouds of which the upper surface is dome-shaped and exhibits protuberances while the base is horizontal.* These clouds appear to be formed by a diurnal ascensional movement which is almost always noticeable. When the cloud is opposite the Sun, the surfaces facing the observer have a greater brilliance than the margins of the protuberances. When the light falls aslant, as is usually the case, these clouds throw deep shadows; when, on the contrary, the clouds are on the same side of the observer as the Sun, they appear dark with bright edges.

True cumulus has well defined upper and lower limits, but in strong winds a broken cloud resembling Cumulus is often seen in which the detached portions undergo continual change. This form may be distinguished by the name *Fracto-cumulus* (Fr.-Cu.).

9. **Cumulo-nimbus (Cu.-Nb.), The Thunder-Cloud; Shower-Cloud.** — *Heavy masses of cloud rising in the form of mountains, turrets or anvils, generally surmounted by a sheet or screen of fibrous appearance (false Cirrus) and having at its base a mass of cloud similar to nimbus.* From the base local showers of rain or snow (occasionally of hail or soft hail) usually fall. Sometimes the upper edges assume the compact form of cumulus, and form massive peaks round which delicate " false Cirrus " floats. At other times the edges themselves separate into a fringe of filaments similar to Cirrus clouds. This last form is particularly common in spring showers.

The front of thunder-clouds of wide extent frequently presents the form of a large arc spread over a portion of a uniformly brighter sky.

10. **Stratus (St.).** — *A uniform layer of cloud resembling a fog but not resting on the ground.* When this sheet is broken up into irregular shreds in a wind, or by the summits of mountains, it may be distinguished by the name *Fracto-stratus* (Fr.-St.).

During summer all low clouds tend to assume forms resembling Cumulus, and may be described accordingly as *Stratus cumuliformis*, *Nimbus cumuliformis*, etc.

The term *Mammato-cumulus* is applied to a cloud having a mammillated lower surface, occurring especially in connection with severe local storms.

The ovoid form, with sharp edges, assumed by certain clouds, particularly during the occurrence of sirocco, mistral or foehn, is indicated by the adjective *lenticularis*, e.g., *Cumulus lenticularis* (*Cu. lent.*), *Stratus lenticularis* (*St. lent.*). Such clouds frequently show iridescence.

For pictures of typical cloud forms see "International Cloud Atlas," 2d ed., Paris, 1910; also U.S. Weather Bureau, "Classification of Clouds for the Guidance of Observers," Washington, D.C., 1911, and Gt. Britain, Meteorological Office, "Observer's Handbook," London (annual).

BEAUFORT WEATHER NOTATION.

Especially intended for the use of mariners, but sometimes used at land stations. The original notation was devised in 1805 by Admiral Sir F. Beaufort; it has since been slightly altered and amplified by British and American meteorologists. The following symbols are used by the marine observers of the U.S. Weather Bureau: —

Upper Atmosphere:
- *b.* — Blue sky.
- *c.* — Cloudy sky.
- *o.* — Overcast sky.

Lower Atmosphere:
- *v.* — Visibility (exceptionally clear).
- *z.* — Haze.
- *m.* — Mist.
- *f.* — Fog.

Precipitation:
- *d.* — Drizzling.
- *p.* — Passing showers.
- *r.* — Rain.
- *s.* — Snow.
- *h.* — Hail.

Electric phenomena:
- *l.* — Lightning.
- *t.* — Thunder.

Wind:
- *q.* Squally.

The British Meteorological Office also uses the following: —

- *e.* — Wet air without rain.
- *g.* — Gloom.
- *u.* — Ugly or threatening appearance of the weather.
- *w.* — Dew.

"The letters *b*, *c*, *o* are intended to refer only to the amount of cloud visible, and not to its density, form or other quality. They have gradually come to be regarded as corresponding to the following cloud amounts in the scale 0–10: *b* = 0 to 3; *bc* or *cb* = 4 to 6; *c* = 7 or 8; *o* = 9 or 10." — Marine Observer's Handbook, Lond., 1915, p. 82.

U.S. Weather Bureau Observers use a line (light or heavy) under the symbol, British observers a dot or two dots, to indicate great intensity. Thus, U.S., $\underline{r}$ heavy rain, $\underline{\mathbf{r}}$, very heavy rain. British, $\underset{\cdot}{r}$, heavy rain; $\underset{:}{r}$, very heavy rain.

LIST OF METEOROLOGICAL STATIONS.

Note. — Stations with asterisk appear in the "Réseau Mondial" of the British Meteorological Office for 1912. (London, 1917.)

NORTH AMERICA.	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
GREENLAND.						
*Angmagsalik	65°	37′ N.	37°	34′ W.	104	32
*Godthaab	64	11	51	44	30	9
Ivigtut	61	12	48	10	16	5
*Jacobshavn	69	13	51	2	41	13
*North Star Bay	76	30	68	55	2	6
*Upernivik	72	47	56	7	44	19
ICELAND.						
*Berufjord	64	40 N.	14	19 W.	59	18
*Grimsey (Akureyi)	66	33	17	58	22	7
*Stykkisholm	65	5	22	46	37	11
*Vestmanno	63	26	20	15	23	8
FÄRO ISLANDS.						
*Thorshavn	62	2 N.	6	45 W.	30	26
ALASKA.						
*Dutch Harbor	53	54 N.	166	32 W.	13	4
*Eagle	64	46	141	12	814	248
Juneau	58	18	134	24	80	24
*Nome	64	30	165	24	23	7
*Sitka	57	4	135	20	88	27
*Tanana	65	12	152	00		?
*Valdez	61	6	146	13	10	3
CANADA.						
Banff	51	10 N.	115	34 W.	4521	1378
*Barkerville	53	2	121	35	4180	1274
*Belle Isle	51	55	55	20	436	133
*Berens River	52	18	97	23	709	216
*Calgary	51	2	114	2	3389	1033
*Carcross	60	11	134	34	2172	662
*Davis Inlet	55	50	60	50		?
*Dawson	64	4	139	20	1053	321
Father Point	48	31	68	19	20	6
*Fort Chippewyan	58	42	111	10	715	218
*Fort Hope	51	32	87	48		?
*Fort Resolution	61	00	113	00	787	240
*Fort Simpson	61	52	120	43	423	129
Fredericton	45	57	66	36	164	50
Halifax	44	39	63	36	88	29
*Hay River	60	51	115	20	525	161
*Kamloops	50	41	120	29	1243	379
Kingston	44	13	76	29	285	87
*Macleod	49	44	113	24	3130	954
*Minnedosa	50	15	99	50	1699	518
Montreal	45	30	73	35	187	57
*Moose Factory	51	16	80	56	30	9
*Nain	56	33	61	41	13	4
Parry Sound	45	19	80	00	635	193
*Point Riche	50	42	57	25	36	11
*Prince Albert	53	10	106	00	1430	436
*Prince Rupert	54	18	130	18	171	52

LIST OF METEOROLOGICAL STATIONS.

Note. — Stations with asterisk appear in the ' Réseau Mondial" of the British Meteorological Office for 1912. (London, 1917.)

CANADA. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height. Feet.	Height. m.
*Qu'Appelle	50°	30' N.	103°	47' W.	2116	645
Quebec	46	48	71	13	296	90
*Sable Island	43	57	60	6	26	8
*St. John, N.B.	45	17	66	4	119	36
*St. Johns, Newfoundland	47	34	52	42	125	38
*S.W. Point, Anticosti	49	24	63	35	30	9
Sydney	46	10	60	10	48	11
*Toronto	43	40	79	24	379	116
*Victoria	48	24	123	19	230	70
*Winnepeg	49	53	97	7	760	232
Woodstock	43	8	80	47	980	299
*York factory	57	00	92	28	36	11
UNITED STATES.						
*Abilene	32	23 N.	99	40 W.	1738	530
Albany	42	39	73	45	97	30
Alpena	45	5	83	30	609	186
Amarillo	35	13	101	50	3676	1120
Asheville	35	36	82	32	2255	687
Atlanta	33	45	84	23	1174	358
Atlantic City	39	22	74	25	52	16
Augusta	33	28	81	54	180	55
Baltimore	39	17	76	37	123	37
Binghamton	42	6	75	55	875	267
*Bismarck	46	47	100	38	1674	510
Block Island	41	10	71	36	26	8
Blue Hill	42	12	71	6	640	195
Boise	43	37	116	3	2739	835
Boston	42	21	71	4	125	38
Buffalo	42	53	78	53	767	234
Cairo	37	0	89	10	356	108
Cape Henry	36	56	76	0	18	5
*Charleston	32	47	79	56	48	15
Charlotte	35	13	80	51	779	237
Chattanooga	35	4	85	14	702	232
*Cheyenne	41	8	104	48	6088	1855
*Chicago	41	53	87	37	823	251
Cincinnati	39	6	84	30	628	191
Cleveland	41	30	81	42	762	232
Columbia, Mo	38	57	92	20	784	239
Columbia, S.C	34	0	81	3	351	107
Columbus	39	58	83	0	824	251
Concord	43	12	71	32	288	88
Corpus Christi	27	49	97	25	20	6
Davenport	41	30	90	38	606	185
*Denver	39	45	105	0	5291	1613
Des Moines	41	35	93	37	861	262
Detroit	42	20	83	3	730	222
Dodge	37	45	100	0	2509	765
Drexel	41	20	96	16	1299	396
Dubuque	42	30	90	44	698	213
*Duluth	46	47	92	6	1133	345
Eastport	44	54	66	59	76	23
Elkins	38	53	79	49	1940	591
El Paso	31	47	106	30	3762	1147
Erie	42	7	80	5	714	217

LIST OF METEOROLOGICAL STATIONS.

NOTE. — Stations with asterisk appear in the "Réseau Mondial" of the British Meteorological Office for 1912. (London, 1917.)

UNITED STATES. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
Escanaba	45°	48′ N.	87°	5′ W.	612	187
Eureka	40	48	124	11	62	19
Evansville	37	58	87	33	431	131
Fort Smith	35	22	94	24	457	139
Fort Worth	32	43	97	15	670	204
Fresno	36	43	119	49	330	101
*Galveston	29	18	94	50	54	16
Grand Haven	43	5	86	13	632	193
Grand Junction	39	9	108	33	4608	1404
Green Bay	44	31	88	0	617	188
Harrisburg	40	16	76	52	374	114
Hartford	41	46	72	40	159	48
Havre	48	34	109	40	2505	764
*Helena	46	34	112	4	4110	1253
Houghton	47	7	88	34	668	204
Houston	29	47	95	24	138	42
Huron	44	21	98	14	1306	398
Indianapolis	39	46	86	10	822	251
Ithaca	42	27	76	29	836	255
Jacksonville	30	20	81	39	43	13
Kalispell	48	10	114	25	2973	906
Kansas City	39	5	94	37	963	293
*Key West	24	33	81	48	22	7
Knoxville	35	56	83	58	996	304
La Crosse	43	49	91	15	714	218
Lander	42	50	108	45	5372	1637
Lansing	42	44	84	26	878	268
Lewiston	46	25	117	2	757	231
Lexington	38	2	84	33	989	301
Lincoln	40	49	96	45	1189	362
Little Rock	34	45	92	6	357	109
Los Angeles	34	3	118	15	338	103
Louisville	38	15	85	45	525	160
Lynchburg	37	25	79	9	681	207
Macon	32	50	83	38	370	113
Madison	43	5	89	23	974	297
Marquette	46	34	87	24	734	224
Memphis	35	9	90	3	399	122
Meridan	32	21	88	40	375	114
Milwaukee	43	2	87	54	681	207
Minneapolis	44	59	93	18	918	280
*Mobile	30	41	88	2	57	17
Montgomery	32	23	86	18	223	68
Moorhead	46	52	96	44	935	285
Mount Tamalpais	37	56	122	35	2375	724
Mount Weather	39	4	77	55	1726	526
Nantucket	41	17	70	6	12	4
*Nashville	36	10	86	47	546	166
New Haven	41	18	72	56	106	32
*New Orleans	29	58	90	4	53	16
*New York	40	43	74	0	314	111
Norfolk	36	51	76	17	91	28
North Head	46	16	124	4	211	64
*North Platte	41	08	100	45	2821	860
Northfield	44	10	72	41	876	267
Oklahoma City	35	26	97	33	1214	370
Omaha	41	16	95	56	1105	337

LIST OF METEOROLOGICAL STATIONS.

NOTE. — Stations with asterisk appear in the "Réseau Mondial" of the British Meteorological Office for 1912. (London, 1917.)

UNITED STATES. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height. Feet.	Height. m.
Oswego	43°	29′ N.	76°	35′ W.	335	102
Parkersburg	39	16	81	36	638	194
Pensacola	30	25	87	13	56	17
Philadelphia	39	57	75	9	117	36
Phœnix	33	28	112	0	1108	338
Pike's Peak	38	50	105	2	14134	4308
Pittsburg	40	32	80	2	842	257
Pocatello	42	52	112	29	4477	1365
Port Huron	43	0	82	26	638	194
Portland, Me	43	39	70	15	103	31
*Portland, Oreg	45	32	122	41	153	47
Providence	41	50	71	25	160	49
Pueblo	38	18	104	36	4685	1428
Raleigh	35	45	78	37	376	115
Richmond	37	32	77	27	144	44
Rochester	43	8	77	42	523	159
Roseburg	43	13	123	20	510	155
Sacramento	38	35	121	30	69	21
*St. Louis	38	38	90	12	568	173
St. Paul	44	58	93	3	837	255
Salt Lake City	40	46	111	54	4360	1329
San Antonio	29	27	98	28	693	211
*San Diego	32	43	117	10	87	26
Sandusky	41	25	82	40	629	192
*San Francisco	37	48	122	26	155	47
*Santa Fé	35	41	105	57	7013	2138
Sault Ste. Marie	46	30	84	21	614	187
Savannah	32	5	81	5	65	20
Scranton	41	24	75	42	805	245
Seattle	47	38	122	20	125	38
Shreveport	32	30	93	40	249	76
Spokane	47	40	117	25	1929	588
Springfield, Ill	39	48	89	39	644	196
Springfield, Mo	37	12	93	18	1324	403
Syracuse	43	2	76	10	597	182
Tacoma	47	16	122	23	213	65
Tampa	27	57	82	27	35	11
Tatoosh Island	48	23	124	44	86	26
Taylor	30	35	97	20	583	178
Toledo	41	40	83	34	628	191
Topeka	39	3	95	41	987	301
Valentine	42	50	100	32	2598	792
Vicksburg	32	22	90	53	247	75
*Washington City	38	54	77	3	112	34
Wichita	37	41	97	20	1358	414
Williston	48	9	103	35	1878	572
Wilmington	34	14	77	57	78	24
Wytheville	36	56	81	5	2304	702
Yankton	42	54	97	28	1233	376
MEXICO, CENTRAL AMERICA AND WEST INDIES.						
*Barbados (Windward Islands)	13	8 N.	59	36 W.	180	55
Basseterre (St. Kitts)	17	18	62	43	29	9
*Belize (Brit. Honduras)	19	29	88	12	6	2
*Bermuda (Fort Prospect)	32	17	64	46	151	46

LIST OF METEOROLOGICAL STATIONS.

NOTE. — Stations with asterisk appear in the "Réseau Mondial" of the British Meteorological Office for 1912. (London, 1917.)

MEXICO, CENTRAL AMERICA AND WEST INDIES. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
Bridgetown (Barbados)	13°	4′ N.	59°	37′ W.	30	9
Camp Jacob (Guadeloupe)	16	00	62	2	1650	503
Cienfuegos (Cuba) Montserrat	22	8	80	26	98	30
Colon (Panama)	9	23	79	23	36	11
*Culebra (Panama)	9	10	79	40	404	123
Fort de France (Martinique)	14	36	61	5	13	4
Grand Turk (Turks Is.)	21	21	71	7	11	3
*Grenada (Richmond Hill)	12	3	61	45	508	155
Guanajuato (Mexico)	21	00	101	15	6640	2024
Guatemala	14	37	90	31	4888	1490
*Havana (Cuba)	23	8	82	22	57	24
*Jamaica (Negril Point)	18	15	78	23	33	10
Kingston (Jamaica)	17	58	76	48	286	87
*Leon (Mexico)	21	7	101	41	5899	1799
Mazatlan (Mexico)	23	11	106	25	25	8
*Mexico (Mexico)	19	26	99	8	7480	2280
*Morelia (Mexico)	19	14	100	7	6342	1933
*Nassau (Bahamas)	25	5	77	21	26	8
*Oaxaca (Mexico)	17	4	96	44	5128	1563
*Port au Prince (Haiti)	18	34	72	22	118	37
Port of Spain (Trinidad)	10	35	61	30	40	12
Puelba (Mexico)	19	2	98	11	7116	2169
Puerto Principe (Cuba)	21	23	77	56	352	107
Roseau (Dominica)	15	17	61	23	25	8
*St. Croix (Christiansted)	17	45	64	42	23	7
St. Thomas (Virgin Is.)	18	13	64	29	27	8
*Salina Cruz (Mexico)	16	12	95	16	184	56
Saltillo (Mexico)	25	25	100	56	5399	1645
San Domingo (San Domingo)	18	28	69	93	57	18
San José (Costa Rico)	9	56	84	8	3724	1135
San Juan (Porto Rico)	18	29	66	07	82	25
San Luis Potosi (Mexico)	22	5	100	59	6200	1890
*San Salvador (Central America)	13	44	89	9	2155	657
Santiago de Cuba (Cuba)	19	55	75	50	82	25
Tacubaya (Mexico)	19	24	99	12	7621	2323
Vera Cruz (Mexico)	19	12	96	8	23	7
*Willemstad (Mexico)	12	6	68	56	75	23
*Zacatecas (Mexico)	22	47	102	35	8015	2610
*Zapotlan (Mexico)	19	38	103	37	5016	1529
SOUTH AMERICA.						
Andalgalá (Argentina)	27	30 S.	66	26 W.	3517	1072
Aracajú (Brazil)	10	55	37	4	14	4
*Arequipa (Peru)	16	22	71	33	8041	2451
Asuncion (Paraguay)	25	32	57	48	312	95
*Bahía Blanca (Argentina)	38	45	62	15	82	25
Bello Horizonte (Brazil)	19	54	43	30	2812	857
Bogotá (Colombia)	4	35	74	14	8579	2615
*Buenos Aires (Argentina)	34	36	58	22	72	22
Caldera (Chile)	27	3	70	53	98	30
*Caracas (Venezuela)	10	31 N.	66	56	3419	1042
Catamarca (Argentina)	28	27 S.	65	47	1673	510
*Cayenne (French Guiana)	4	56 N.	52	21	20	6
Ceres (Argentina)	29	55 S.	61	58	285	87
Chaco (Paraguay)	23	23	58	25	361	110
Concordia (Argentina)	31	23	58	2	79	24

LIST OF METEOROLOGICAL STATIONS.

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SOUTH AMERICA. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height. Feet.	m.
Coquimbo (Chile)	29°	56′ S.	71°	21′ W.	82	25
*Córdoba (Argentina)	31	25	64	12	1388	423
Corrientes (Argentina)	27	27	58	49	177	54
*Curityba (Brazil)	25	26	49	16	2979	908
*Cuyaba (Brazil)	15	36	56	00	771	235
El Misti (Peru)						
Summit Station	16	16	71	30	19200	5852
Mt. Blanc station	16	16	71	30	15700	4785
*El Peru (Brazil)	7	30 N.	62	00	?984	?300
*Fernando Noronha (Brazil)	3	51 S.	32	25	312	95
*Georgetown (Brit. Guinea)	6	50 N.	58	12	6	2
*Goya (Argentina)	29	9 S.	59	15	210	64
Iquique (Chile)	20	12	70	11	33	10
Isla Chañaral (Chile)	29	1	71	37	157	48
*Islota de los Evangelistas (Chile)	52	24	75	6	180	55
Juan Fernandez (Chile)	33	37	78	50	33	10
La Plata (Argentina)	34	9	57	9	60	18
Lima (Peru)	16	4	77	3	520	158
*Manaos (Brazil)	3	8	59	59	105	32
*Montevideo (Uruguay)	34	54	56	12	96	29
*Paramaribo (Dutch Guinea)	5	49 N.	55	9	13	4
Paraná (Argentina)	41	43 S.	60	31	256	78
*Porto Alegre (Brazil)	30	2	51	13	85	26
Potosi (Bolivia)	19	38	65	25	13287	4050
*Puerto de Antofagasta (Chile)	23	39	70	25	16	5
*Puerto de Arica (Chile)	18	28	70	20	33	10
*Puerto de Punta Arenas (Chile)	53	10	70	54	13	4
*Punta Angeles (Chile)	33	1	71	38	131	40
Punta Carranza (Chile)	35	36	72	38	98	30
*Punta Corona (Chile)	41	51	73	50	82	25
*Punta Dungeness (Chile)	52	24	68	25	16	5
*Punta Galera (Chile)	40	1	73	44	131	40
*Punta Tortuga (Chile)	29	56	71	21	82	25
Quito (Ecuador)	0	14	78	32	9337	2846
*Rio de Janeiro (Brazil)	22	54	43	10	197	61
*Rio Grande do Sul (Brazil)	32	2	52	6	7	2
Rosario (Paraguay)	32	55	60	38	85	26
San Juan (Argentina)	31	32	68	42	2168	664
*Santiago (Chile)	33	27	70	42	1706	520
*São Paulo (Brazil) Observatorio	23	34	46	38	2690	820
*Sucre (Bolivia)	19	3	67	17	9331	2844
Torre do Recife (Pernambuco, Brazil)	8	4	34	53	97	30
Valparaiso (Chile)	33	1	71	38	131	40
Villa Colon (Uruguay) Observatorio Prado	34	51	56	19	95	29
EUROPE.						
NORWAY AND SWEDEN.						
*Bergen (Norway)	60	24 N.	5	19 E.	144	44
*Berufjord (Sweden)	64	40	14	19	59	18
*Bodö (Norway)	67	17	12	24	67	21
Carlshamn (Sweden)	56	10	14	52	39	12
Christiania (Norway)	59	55	10	43	82	25
*Christiansund (Norway)	63	7	7	45	59	18

LIST OF METEOROLOGICAL STATIONS.

Note.—Stations with asterisk appear in the "Réseau Mondial" in the British Meteorological Office for 1912. (London, 1917.)

NORWAY AND SWEDEN. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
Dovre (Norway)	62°	5′ N.	62°	5′ W.	2113	644
Florö (Norway)	61	36	5	2	26	7
*Gjesvaer (Norway)	71	6	25	22	20	6
*Harparanda (Sweden)	65	50	24	9	30	9
Härnösand (Sweden)	62	37	17	57	66	20
*Mehavn (Norway)	71	1	27	47	20	6
Skudenes (Norway)	59	9	5	16	12	4
Stockholm (Sweden)	59	21	18	4	144	44
*Trondhjem (Norway)	63	26	10	25	131	40
*Upsala (Sweden)	59	51	17	38	79	24
*Vardö (Norway)	70	22	31	8	33	10
RUSSIA. (With Siberia and Finland.)						
Akhtuba	48	18° N.	46	9 E.	16	5
*Akmolinsk	51	12	71	23	?1138	?347
*Arkhangelsk	64	33	40	32	22	7
Askhabad	37	57	58	23	741	226
*Astrakhan	46	21	48	2	−46	−14
*Barnaoul	53	20	83	47	558	170
Batoum	41	40	41	38	10	3
Belagatchskoe Zimovie	51	00	80	18	1043	318
*Berezov	63	56	65	4	131	40
*Blagoveskchensk	50	15	127	38	?525	?160
*Blagoveshchensk Priisk	58	10	114	17	?1608	?490
Bogoslovsk	59	45	60	1	636	194
Choucha	39	46	46	45	4487	1368
Dorpat	58	22	26	43	243	74
Derkoulskoe verderie	49	3	39	48	499	152
*Doudinka	69	7	87	00	?66	?20
*Ekaterinburg	56	50	60	38	948	289
Elatma	54	58	41	45	459	140
Elisavetgrad	48	31	32	17	403	123
*Eniseisk	58	27	92	11	276	84
*Fort Alexandrovsk	44	31	50	16	79	24
Golooustnoe	52	1	105	27	1529	466
Goudaour	42	28	44	28	7231	2204
*Helsingfors	60	10	24	57	38	12
*Iakoutsk	62	1	129	43	354	?108
*Irgiz	48	37	61	16	367	112
*Irkutsk	52	16	104	19	1532	467
*Jurjev	58	23	26	43	246	75
Kamenaïa Steppe	51	3	40	42	623	190
Kansk	56	12	95	39	715	218
Kargopol	61	30	38	57	420	128
Kars	40	37	43	5	5731	1747
Kazalinsk	45	46	62	7	230	70
*Kazan	55	47	49	8	262	80
Kem	64	57	34	39	41	13
Kerki	37	50	65	13	804	245
*Kharkov (University)	50	00	36	14	459	140
*Kiev	50	27	30	30	600	183
*Kirensk	57	47	108	7	886	270
*Kola	68	53	33	1	22	7
*Krasnovodsk	40	00	52	59	−49	−15

LIST OF METEOROLOGICAL STATIONS.

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RUSSIA. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height. Feet.	Height. m.
*Kuopio	62°	54′ N.	27°	40′ E.	328	100
Kursk	51	45	36	12	774	236
*Lenkoran	38	46	48	52	−62	−19
Libava	56	31	21	1	16	5
Lubny (Gymnasium)	50	1	33	22	541	165
Lugansk	48	35	39	20	148	45
Magaratch	44	32	34	13	262	80
*Malye Karmakouly	72	23	52	43	48	15
Mariupolskoe verderie	47	39	37	30	919	280
Mezen	65	50	44	16	53	16
*Minousinsk	53	43	91	41	837	?255
*Moscow	55	45	37	34	512	156
*Narynskoe	41	26	76	2	?6611	?2015
*Nertchinsk	51	59	116	35	1588	484
Nertchinski Zavod	51	19	119	37	2041	622
Nijni Novgorod	56	20	44	00	518	158
*Nikolaevsk-um-Amour	53	8	140	45	69	21
Nikolaief	46	58	31	58	64	20
Nikolsk	59	32	45	27	508	156
Novaia Alexandria	51	25	21	57	482	147
*Novorossiisk	44	40	37	49	121	37
*Obdorsk	66	31	66	35	86	24
*Odessa (University)	46	29	30	46	213	65
*Okhotsk	59	21	143	17	20	6
*Olekminsk	60	22	120	26	?663	?202
*Omsk	54	58	73	23	289	88
Orel	52	58	36	4	600	183
*Orenburg	51	45	55	6	374	114
*Oust-Maïskoe	60	25	134	29	?328	?100
*Oust-Tsylma	65	27	52	10	?82	?25
*Paikanskii Sklad	50	11	130	7	?551	?168
Pamirski Post	38	11	74	2	?11942	?3640
Pavlovsk	59	41	30	29	130	40
Pensa	53	11	45	1	706	215
*Perm	58	1	56	15	535	163
Pernov	58	23	24	30	32	10
*Petrograd	59	56	30	16	16	5
*Petropavlosk	52	53	158	47	285	87
*Petrozavodsk	61	47	34	23	128	39
Pinsk	52	7	26	6	466	142
Ploti	47	57	29	10	468	143
Polibino	53	44	52	56	355	108
*Port Arthur	48	27	89	12	643	196
Povenets	62	51	34	49	141	43
Rostov on Don	47	13	39	43	161	49
Rykovskoe	50	47	142	55	410	125
Saguny	50	36	39	43	685	209
Samarkand	39	39	66	57	2369	722
Sarapul	56	28	53	49	397	121
*Saratov	51	32	46	3	197	60
Smolensk	54	47	32	4	791	241
Sodankylä	67	25	26	36	590	180
*Sourgout	61	15	73	24	?131	?40
Stavropol	45	3	41	59	1909	582
Surgut	61	15	73	24	472	42
*Tachkent	41	20	69	18	1568	478
*Tchita	51	2	113	30	2211	674

LIST OF METEOROLOGICAL STATIONS.

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RUSSIA. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
Termez	37°	12′ N.	67°	15′ E.	1017	310
*Tiflis	41	43	44	48	1342	409
Tiumen	57	10	65	32	292	89
*Tobolsk	58	12	68	14	354	108
*Tomsk	56	30	84	58	400	122
Totaikoi	44	54	34	11	994	303
*Touroukhanst	65	55	87	38	?131	?40
Troitskosavsk	50	22	106	27	2520	768
*Troitsko-Petcherskoe	62	42	56	13	404	?123
Tulun	54	33	100	22	1617	493
*Tygan Ourkan	54	5	124	46	?1214	?370
Ufa	54	43	55	56	571	174
Uman	48	45	30	13	709	216
Uralsk	51	12	51	22	124	38
Uspenskaia	56	38	39	12	783	239
Valaam	61	23	30	57	122	37
Varshava (Warsaw) (University)	52	15	21	1	394	120
Vasilevitchi	52	16	29	48	440	134
Velikiia Louki	56	21	30	31	341	104
*Velsk	61	5	42	7	?285	?87
Verkhniaia Michikha	51	30	105	58	4199	1280
*Verkhoïansk	67	33	133	24	328	100
*Vernyī	43	16	76	53	2566	782
Vīatka	58	36	49	41	607	185
Vilno	54	41	25	18	486	148
*Vladivostok	43	7	131	54	88	27
Vlotslavsk	52	40	19	4	213	65
Vologda	59	14	39	53	407	124
Vycknii Volotchok	57	35	34	34	548	167
Zlatoust	55	10	59	41	1502	458
FRANCE.						
Bagnères-de-Bigorre	43	4 N.	0	9 E.	1795	547
Besançon (Observatoire)	47	15	5	59	1020	311
Bordeaux	44	50	0	31 W.	243	74
Brest	48	23	4	30	200	61
Chamonix	45	55	7	2 E.	3406	1038
Cherbourg	49	39	1	38 W.	43	13
Dunkerque	51	2	2	22 E.	23	7
Langres	47	52	5	20	1529	466
Lyon (Saint-Genis-Laval)	45	41	4	47	981	299
*Marseille	43	18	5	23	246	75
Mont Blanc (Grands Mulets)	45	52	6	51	9908	3020
Mont Blanc (Chamonix)	45	55	6	51	3405	1038
Mont Blanc (Les Bosses)					14301	4359
Mont Blanc (Sommet)	45	59	6	51	15781	4810
Mont Ventoux	44	10	5	16	6234	1900
Montpellier	43	37	3	53	118	36
*Nantes	47	15	1	34 W.	135	41
Nice (Observatoire)	43	43	6	78 E.	1115	340
Paris (Central Meteo. Bureau)	48	52	2	18	108	33
*Paris (Parc Saint Maur)	48	48	2	30	164	50
Paris (Eiffel)	48	52	2	18	1027	313
Paris (Montsouris)	48	49	2	20	253	77
Perpignan	42	42	2	53	102	31

LIST OF METEOROLOGICAL STATIONS.

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FRANCE. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height. Feet.	Height. m.
Pic du Midi de Bigorre	42°	56′ N.	0°	8′ E.	9380	2859
Puy de Dome (Plaine)	45	46	2	86	1309	399
Puy de Dome (Sommet)	45	46	2	57	4813	1467
Sainte-Honorine-du-Fay	49	5	0	30 W.	387	118
Toulouse	43	37	1	67	636	194
GERMANY.						
Aachen (Prussia)	50	47 N.	6	6 E.	672	205
Ansbach (Bavaria)	49	18	10	33	1437	438
Altenberg (Saxony)	50	46	13	46	2481	756
Augsburg (Bavaria)	48	22	10	54	1640	500
Bad Elster (Saxony)	50	17	12	15	1644	501
Bamberg (Bavaria)	49	53	10	53	943	288
Bautzen (Saxony)	51	11	14	26	669	204
Bayreuth (Bavaria)	49	57	11	34	1190	363
Berlin (Prussia)	52	30	13	25	125	38
Borkum (Prussia)	53	35	6	40	26	8
Bremen	53	5	8	48	52	16
Breslau (Prussia)	51	7	17	2	482	147
Brocken (Prussia)	51	47	10	37	3766	1148
Bromberg (Prussia)	53	8	18	0	177	54
Chemnitz (Saxony)	50	50	12	55	1092	333
Dresden (Saxony)	51	3	13	44	361	110
Erfurt (Prussia)	50	58	11	4	718	219
Freiberg (Saxony)	50	55	13	21	1336	407
Friedrichshafen (Württemberg)	47	39	37	55	1338	408
Grosser Belchen (Alsace)	47	53	7	6	4573	1394
*Hamburg	53	33	9	58	85	26
Helgoland (North Sea)	54	10	7	51	144	44
Höchenschwand (Baden)	47	44	8	10	3296	1005
Hohenheim (Württemberg)	48	43	9	14	1319	402
Hohenspeissenberg (Bavaria)	47	48	11	1	3261	994
Kahl a. M. (Bavaria)	50	4	9	1	374	114
Kaiserlautern (Bavaria)	49	27	7	46	794	242
Karlsruhe (Baden)	49	1	8	25	416	127
Keitum (Prussia)	54	54	8	22	26	8
Kiel (Prussia)	54	20	10	9	155	47
Königsberg (Prussia)	54	43	20	30	33	10
Landshut (Bavaria)	48	32	12	10	1305	398
Leipzig (Saxony)	51	20	12	23	391	119
Ludwigshafen (Bavaria)	49	29	8	26	329	100
Magdeburg (Prussia)	52	8	11	38	177	54
Memel (Prussia)	55	43	21	7	33	10
München (Bavaria)	48	9	11	34	1726	526
Münster (Westfalen)	51	58	7	37	210	64
Neufahrwasser (Prussia)	54	24	18	40	15	5
Nürnberg (Bavaria)	49	27	11	3	1014	309
Passau (Bavaria)	48	34	13	28	1015	309
Posen (Prussia)	52	25	16	56	216	66
*Potsdam observatory (Prussia)	52	23	13	4	279	85
Regensburg (Bavaria)	49	1	12	7	1161	354
Reitzenhain (Saxony)	50	34	13	14	2551	778
Rügenwaldermünde (Prussia)	54	26	16	23	10	3
Schneeberg (Saxony)	50	36	12	38	1452	443
Schneekoppe (Prussia)	50	44	15	44	5282	1610

LIST OF METEOROLOGICAL STATIONS.

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GERMANY. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
Strassburg (Alsace)	48°	35′ N.	7°	46′ E.	471	144
Stuttgart (Württemberg)	48	47	9	11	883	269
Swinemünde (Prussia)	53	56	14	16	33	10
Villingen (Baden)	48	4	8	27	2342	714
Wiesbaden (Prussia)	50	5	8	14	374	114
Wilhelmshaven (Oldenburg)	53	32	8	9	28	8
Würzburg (Bavaria)	49	48	9	56	588	179
Wustrow (Mecklenburg)	54	21	12	24	23	7
Zittau (Saxony)	51	54	14	49	827	252
HOLLAND.						
Amsterdam	52	23 N.	4	55 E.	9	2
*De Bilt	52	6	5	11	45	3
Groningen	53	13	6	33	29	9
Helder	52	58	4	45	18	6
Maastricht	50	51	5	41	167	61
Rotterdam	51	54	4	29	66	4
Vlissingen	51	26	3	34	26	8
BELGIUM.						
Arlon	49	40 N.	5	48 E.	1450	442
Bruxelles	50	51	4	22	131	40
Furnes	51	4	2	40	20	6
Liège	50	37	5	34	246	75
Maeseyck	51	6	5	48	115	35
Ostende	51	14	2	55	23	7
*Uccle	50	48	4	22	328	100
BRITISH ISLES.						
*Aberdeen	57	10 N.	2	6 W.	88	27
Armagh	54	21	6	39	200	61
Ben Nevis	56	48	5	00	4405	1343
Bidston (Liverpool)	53	24	3	4	188	57
Deerness, Orkney Is	58	56	2	45	164	50
Falmouth	50	9	5	4	167	51
Fort William	56	49	5	7	39	12
Glasgow	55	53	4	18	180	55
*Greenwich	51	28	0	00	157	48
Holyhead (Harbour office)	53	18	4	39	57	17
Kew	51	28	0	19	18	6
*Lerwick	60	9	1	8	59	18
London (Westminster)	51	30	0	8	76	23
Malin Island	55	23	7	24	208	63
Oxford	51	46	1	16	208	63
Scilly Islands, St. Mary's	49	56	6	18	131	40
Shields North	55	0	1	27	96	29
Southport	53	39	2	59	37	11
Stonyhurst College	53	51	2	28	375	114
Stornoway	58	11	6	22	51	16
Sumburgh head	59	51	1	17	112	34
*Valencia	51	56	10	15	46	14
Yarmouth	52	37	1	43	17	5

LIST OF METEOROLOGICAL STATIONS.

NOTE. — Stations with asterisk appear in the "Réseau Mondial" of the British Meteorological Office for 1912. (London, 1917.)

	Latitude.	Longitude from Greenwich.	Height.	
			Feet.	m.
SPAIN AND PORTUGAL.				
Barcelona (Spain)	41° 23′ N.	2° 10′ E.	138	42
Cadiz (Spain)	36 31	6 18 W.	46	14
Coimbra (Portugal)	40 12	8 25	459	140
*Horta (Portugal)	38 32	28 38	98	30
*Las Palmas (Canary Is.)	28 1	15 26	30	9
*Lisboa (Portugal)	48 43	9 9	312	95
*Madeira (Portugal)	32 37	16 54	82	25
*Madrid (Spain)	40 24	3 41	2149	655
Oña (Spain)	42 44	3 25	1903	580
Oporto (Portugal)	41 8	8 36	328	100
Oviedo (Spain)	43 23	5 48	801	244
*Palma (Spain)	39 33	2 42 E.	?	?
*Ponta Delgada (Azores)	37 44	25 40 W.	56	17
*Puerto de Orotava (Canary Is.)	28 25	16 32	?328	?100
San Fernando (Spain)	36 28	0 25	92	28
Sierra da Estrêlla (Portugal)	40 25	7 35	4547	1386
Teneriffe (Canary Is.)	28 25	16 30	454	138
Tortosa (Spain) Observatorio del Ebro	40 49	0 29 E.	167	51
Valencia (Spain)	39 28	0 22 W.	23	7
ITALY.				
Alessandria	44 54 N.	8 77 E.	321	98
Asti	44 54	8 13	465	142
Avellino	40 56	14 45	1871	570
Belluno	46 8	12 14	1325	404
Benevento	41 7	14 48	558	170
Bergamo	45 42	9 81	1267	386
Bologna	44 30	11 21	279	85
Caserta	41 3	13 82	250	76
Castellaneta	40 38	16 56	780	238
*Catania (Bened.)	37 30	14 65	213	65
Conegliano	45 53	12 19	279	85
Cremona	45 8	10 3	222	68
Desenzano	45 28	10 72	344	105
Elena	41 12	13 35	147	45
Fermo	43 10	13 43	919	280
Ferrara	44 51	11 77	131	40
Firenze	43 46	11 15	238	73
Foggia	41 27	15 31	287	87
Forli	44 13	12 2	163	50
Genova	44 25	8 95	177	54
Ischia	40 44	13 54	106	32
Lecce	40 22	17 72	236	72
Livorno	43 33	10 18	78	24
Messina	38 12	15 33	197	60
Milano (Brera)	45 28	9 11	482	147
Modena	44 54	12 29	167	51
Moncalieri	45 0	7 77	848	258
Napoli	40 52	13 76	489	149
Padova	45 24	11 92	103	31
Palermo	38 6	12 80	234	71
Pavia	45 11	9 10	268	82
Perugia	43 7	12 23	1706	520
Piacenza	45 3	9 80	235	72
Pisa	43 44	10 24	30	9

LIST OF METEOROLOGICAL STATIONS.

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ITALY. (*Continued.*)	Latitude.	Longitude from Greenwich.	Height. Feet.	Height. m.
Pistoia	43° 56′ N.	10° 95′ E.	282	86
Prato	43 53	11 6	246	75
Reggio, Calabria	38 8	15 39	48	15
Riposto	37 41	14 72	46	14
Roca di Papa	41 46	12 43	2493	760
*Roma, Collegio Romano	41 54	12 29	207	63
Rovigo	45 3	11 87	69	21
Salo	45 36	10 71	328	100
Sassari	40 44	8 75	735	224
Sestola	44 15	10 87	3585	1092
Siena	43 19	11 20	1143	348
Siracusa	37 3	16 75	76	23
Teramo	42 40	13 43	945	288
Torino	45 4	7 82	907	276
Venezia	45 26	12 20	70	21
SWITZERLAND.				
Alstätten	47 23 N.	93 3 E.	1476	450
Altdorf	46 53	8 39	1493	455
Basel	47 33	7 35	912	278
Bern	46 57	7 26	1877	572
Castasegna	46 20	9 31	2297	700
Chaumont	47 1	6 59	3701	1128
Davos Platz	40 48	9 49	5118	1560
Genf	46 12	6 9	1329	405
Lugano	46 0	8 57	902	275
Neuenburg	47 0	6 57	1601	488
Pilatus-Kulm	46 59	8 16	6781	2067
Rigi-Kulm	47 3	8 30	5863	1787
Säntis	47 15	9 20	8202	2500
Sils-Maria	46 26	9 46	5951	1814
St. Bernhard	45 52	7 11	8123	2476
*Zürich	47 23	8 33	1687	493
AUSTRIA-HUNGARY.				
Arco	45 55 N.	10 53 E.	298	91
Aussig a.d. Elbe	50 40	14 2	528	161
Bielitz	49 49	19 3	1125	343
Bruck a.d. Mur	47 25	15 17	1591	485
Brünn	49 11	16 33	679	207
Bucheben	47 8	12 58	3947	1203
*Budapest	47 30	19 2	369	112
Dobogókö	47 44	18 54	2290	698
Döllach	46 58	12 54	3359	1024
Görz	45 57	13 37	308	94
Graz	47 4	15 28	1211	369
Gries b. Bozen	46 30	11 20	932	284
Gyertyó-Szt. Miklos	46 43	25 36	2670	814
Herény	47 16	16 36	744	227
Innsbruck	47 16	11 24	1903	580
Klagenfurt I	46 37	14 18	1476	450
Krakau	50 4	19 57	722	220
Kremsmünster	48 4	14 8	1260	384
Lesina	43 10	16 26	62	19
Lussinpiccolo	44 32	14 28	10	3

LIST OF METEOROLOGICAL STATIONS.

NOTE. — Stations with asterisk appear in the "Réseau Mondial" of the British Meteorological Office for 1912. (London, 1917.)

AUSTRIA-HUNGARY. (*Continued.*)	Latitude.	Longitude from Greenwich.	Height. Feet.	Height. m.
Marburg	46° 34′ N.	15° 39′ E.	886	270
Mariabrunn	48 12	16 14	751	229
Nagyszeben	45 47	24 19	1358	415
Obir (Berghaus)	46 30	14 29	6716	2044
Obir (Hannwarte)	46 30	14 29	7021	2140
Ó-Gyalla	47 52	18 12	394	120
Osielec	49 41	19 47	1378	420
Pécs	46 6	18 14	499	152
Pelagosa	42 23	16 16	302	92
Prag (Petřinwarte)	50 5	14 24	1066	325
Prag (Sternwarte)	50 5	14 25	646	197
Prerau	49 27	17 27	696	212
Rothholz	47 23	11 48	1758	536
Schmittenhöhe	47 20	12 44	6456	1968
Sonnblick	47 3	12 57	10190	3106
St. Katharein a. d. Lamming	47 28	15 10	2083	635
St. Pölten	48 12	15 37	899	274
Tarnopol	49 33	25 36	1063	324
Tragöss	47 31	15 5	2510	765
Turkeve	47 7	20 45	288	88
Ungvár	46 36	22 18	433	132
Weiswasser	50 30	14 48	964	294
*Wien (Hohe Warte)	48 15	16 22	666	203
Wiener Neustadt	47 49	16 15	869	265
Zágrab	45 49	15 58	531	162
Zell am See	47 19	12 48	2503	763
Zsombolya	45 47	20 43	269	82
BALKAN PENINSULA AND ASIATIC TURKEY.				
*Athens (Greece)	37 38 N.	23 43 E.	351	107
*Baghdad (Asiatic Turkey)	33 21	44 28	128	39
*Beirut (Asiatic Turkey)	33 54	35 28	108	33
Belgrad (Servia)	44 48	20 27	453	138
Bouïouk-Dere (Asiatic Turkey)	41 10	29 3	384	117
*Bucharest (Roumania)	44 25	26 6	269	82
*Busrah (Asiatic Turkey)	30 31	47 53	26	8
Constantinople (European Turkey)	41 2	28 58	246	75
El-Athroun (Palestine)	31 50	34 60	656	200
*Hebron (Palestine)	58 12	62 21	49	15
Jerusalem (Palestine)	31 48	35 11	2447	746
Kazanlyk (Bulgaria)	42 37	25 24	1220	372
Le Krey (Asiatic Turkey)	33 49	35 40	3330	1015
Mamouret-ul-Aziz (Asiatic Turkey)	38 30	39 22	?3281	?1000
Monastir (Servia)	41 1	19 3	2024	617
Saloniki (Greece)	40 39	23 7	6	2
Sarona (Palestine)	32 5	34 47	66	20
Scutari (Albania)	42 3	19 30	30	9
Sinaia (Roumania)	45 30	25 34	2821	860
Sinope (Asiatic Turkey)	42 1	35 19	?59	?18
Sivas (Asiatic Turkey)	39 43	34 50	4331	1320
Sofia (Bulgaria)	42 42	23 20	1804	550
Smyrna (Asiatic Turkey)	38 26	24 49	6	2
Sulina (Roumania)	45 9	29 40	6	2

LIST OF METEOROLOGICAL STATIONS.

Note. — Stations with asterisk appear in the "Réseau Mondial" of the British Meteorological Office for 1912. (London, 1917.)

	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
MEDITERRANEAN.						
Canea (Crete)	35°	30′ N.	24°	00′ E.	105	32
*Gibraltar	36	6	5	21 W.	52	16
Kyrenia (Cyprus)	35	21	33	19 E.	52	16
Mahon (Minorca)	39	53	1	57	141	43
*Malta	35	54	14	31	194	59
*Nicosia (Cyprus)	35	12	33	24	72	22
ASIA.						
INDIA (WITH NEIGHBORING COUNTRIES).						
*Aden (Arabia)	12	45 N.	45	3 E.	94	29
Agra	27	10	78	5	555	169
Ajmer	26	27	74	44	1632	497
Akola	20	42	77	4	930	283
*Akyab (Burma)	20	11	92	56	20	6
*Allahabad	25	25	81	51	298	91
Amini Divi (Lakkadives)	11	6	72	45	13	4
Bangalore	12	58	77	37	2982	909
Batticaloa (Ceylon)	7	43	81	44	26	8
Belgaum	15	52	74	34	2524	769
Bellary	15	9	76	57	1455	443
Berhampore	19	18	84	51	67	20
*Bombay	18	54	72	49	37	11
Burdwan	23	16	87	54	102	31
*Bushire (Persia)	28	59	50	53	14	4
*Calcutta	22	36	88	23	20	6
*Cherrapunji	25	15	91	42	4308	1313
Chittagong	22	21	91	53	87	26
Cochin	9	58	76	17	10	3
*Colombo (Ceylon)	6	56	79	53	23	7
*Cothin	10	00	76	21	10	3
Cuttack	20	48	85	54	80	24
Dacca	23	43	90	26	35	11
Darjeeling	27	3	88	18	6960	2121
Deesa	24	14	72	13	474	144
*Dehra Dun	30	20	78	00	2234	681
Dhurbi	26	2	90	2	115	35
Diamond Island (Burma)	15	52	94	19	41	12
Durbhunga	26	10	86	00	166	51
Enzeli (Persia)	37	30	49	28	69	21
False Point	20	20	86	46	20	6
Galle (Ceylon)	6	1	80	14	48	15
*Gauhati	26	8	91	41	194	59
Hambantota (Ceylon)	6	7	81	7	40	12
Hazaribagh	23	59	85	25	2014	614
Hoshangabad	22	46	77	45	1004	305
*Hyderabad	25	24	68	18	95	29
Jacobabad	28	24	68	18	186	57
Jaffna (Ceylon)	9	40	79	56	9	3
*Jaipur	26	56	75	52	1431	436
*Jask (Persia)	25	44	57	47	13	4
Jubbulpore	23	10	79	59	1337	408
*Kandy (Ceylon)	7	18	80	40	1654	504
Karwar	14	48	74	11	44	13
Katmandu	27	42	85	12	4388	1337

TABLE 107.

LIST OF METEOROLOGICAL STATIONS.

NOTE. — Stations with asterisk appear in the "Réseau Mondial" of the British Meteorological Office for 1912. (London, 1917.)

INDIA. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
Khandwa	21°	50′ N.	76°	23′ E.	1037	316
*Kodaikanal observatory	10	13	77	28	7688	2343
*Kurrachee	24	53	66	57	13	4
*Lahore	31	34	74	21	732	223
*Leh	34	10	77	42	11503	3506
Lucknow	26	55	80	59	369	112
Ludhiana	30	55	75	54	806	246
*Madras	13	4	80	14	22	7
Malacca (Straits Settlements)	2	12	102	14	23	7
Meerut	29	1	77	45	738	225
Mercara	12	26	75	47	3721	1134
Mergui	12	27	98	35	96	29
*Meshed (Persia)	36	16	59	35	3105	946
Mooltan	30	12	71	31	420	128
Mount Abu	24	36	72	45	3945	1202
Murree	33	55	73	27	6333	1930
*Mysore	12	18	76	40	2520	768
*Nagpur	21	8	79	5	1017	310
Nuwara Eliya (Ceylon)	6	46	80	47	6240	1902
Nowgong	25	3	79	30	757	231
Patna	20	42	83	10	179	54
*Penang (Straits Settlements)	5	34	100	20	16	5
Periyakulam observatory	10	9	77	32	944	288
Peshawar	34	2	71	37	1110	338
Poona	18	31	73	55	1992	607
*Port Blair (Andaman Is.)	11	40	92	40	59	18
Province Wellesley (Straits Settlements	5	21	100	25	57	17
*Quetta (Baluchistan)	30	11	67	3	5502	1677
Raipur	21	15	81	41	970	296
*Rangoon	16	46	95	48	20	6
Ranikhet	29	40	79	33	6069	1850
Ratnagiri	17	8	73	19	110	34
Roorkee	29	52	77	53	887	270
Salem	11	39	78	12	940	286
Saugor Island	21	40	88	10	6	2
Secunderabad	17	27	78	33	1787	545
*Seychelles	4	37	55	27	16	5
*Shillong	25	33	91	48	4921	1500
Sholapur	17	40	75	56	1585	483
Sibsagar	26	59	94	41	333	101
Silchar	24	50	92	51	89	27
*Simla	31	7	77	8	7224	2204
*Singapore (Straits Settlements)	1	17	103	51	6	2
Sutna	24	34	80	55	1040	317
Trichinopoli	10	50	78	46	272	83
Trincomalee (Ceylon)	8	33	81	15	12	4
Vizagapatam	17	42	83	20	30	9
*Waltair	17	45	83	16	30	9
Wellington	11	22	76	50	6200	1890
CHINA AND INDO-CHINA.						
Cap-Saint Jacques (Indo-China)	10	20 N.	106	65 E.	607	185
*Hang Kow (China)	30	35	114	17	121	37
Hanoi (Indo-China)	21	2	105	50	43	13
Harbin (China)	45	43	126	28	502	153

LIST OF METEOROLOGICAL STATIONS.

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CHINA AND INDO-CHINA. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
*Hongkong (China)	22°	18′ N.	114°	10′ E.	108	33
Kashgar (China)	39	25	76	7	3999	1219
Lang-biam (Indo-China)	12	2	108	20	4606	1404
*Moncay (China)	21	31	107	51	33	10
*Mukden (China)	41	48	123	23	144	44
*Nha-Trang (Indo-China)	12	16	108	72	23	7
Pekin (China)	39	57	116	28	125	38
*Phu Lien (China)	20	48	106	37	380	116
Pnom-Penh (Indo-China)	11	35	104	56	26	8
Pulo-Condor (Indo-China)	8	16	106	35	21	6
*Saigon (Indo-China)	10	46	106	42	36	11
*Shanghai (China) Zi-Ka-Wei	31	12	121	26	23	7
*Tiensin (China)	39	10	117	10	16	5
Tsingtau (Kiao-chau)	36	4	120	19	259	79
Urga (China)	47	55	106	50	?4447	?1325
JAPAN AND KOREA.						
*Chemulpo (Korea)	37	29 N.	126	32 E.	223	68
Fusan (Korea)	35	7	129	5	49	15
Hakodate	41	46	140	44	13	4
Hirosima	34	23	132	27	10	3
Hukuoka	33	35	130	25	20	6
*Joshin (Korea)	40	40	129	11	13	4
*Kioto	35	1	135	46	161	49
Kobe	34	41	135	11	191	58
Kumamoto	32	49	130	42	129	39
Matuyama	33	50	132	45	106	32
*Miyako	39	38	141	59	98	30
*Nagasaki	32	44	129	52	436	133
*Naha	26	13	127	41	34	10
Nagoya	35	10	136	55	50	15
*Nemuro	43	20	145	35	87	27
*Ochiai	47	20	142	44	50	15
Osaka	34	39	135	26	10	3
Sapporo	43	4	141	21	55	17
Tadotu	34	17	133	46	16	5
*Taihoku	25	2	121	31	30	9
*Tokio	35	41	139	45	70	21
Tokusima	34	3	134	33	13	4
Tsukubasan	36	13	140	6	2854	870
PHILIPPINES AND HAWAIIAN ISLANDS.						
Aparri (Luzon)	18	22 N.	121	38 E.	16	5
Altimonan (Luzon)	14	00	121	55	13	4
Baguio (Benguet)	16	25	120	36	4961	1512
*Bolinao (Luzon)	16	24	119	53	33	10
Cebu (Cebu)	10	18	123	54	30	9
Dagupan (Luzon)	16	3	120	20	10	3
*Honolulu (Hawaii)	21	19	157	52 W.	39	12
Iloilo (Panay)	10	42	122	34 E.	20	6
Legaspi (Luzon)	13	9	123	45	20	6
*Manila (Luzon)	14	34	120	58	46	14
Midway Island	28	13	177	22	19	6
*Ormoc (Leyte)	11	00	124	36	20	6

LIST OF METEOROLOGICAL STATIONS.

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PHILIPPINES AND HAWAIIAN ISLANDS. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
*Surigao (Mindanao)	9°	48′ N.	125°	29′ E	20	6
*Tagbilaran (Bohol)	9	38	123	51	85	26
*Vigan (Luzon)	17	34	120	23	49	15
EAST INDIES.						
*Batavia (Java)	6	11 S.	106	50 E.	26	8
*Christmas Island	10	25	105	43	20	6
*Cocos Keeling Island	12	5	96	54	16	5
*Kajoemas (Java)	7	56	114	9	3117	950
*Kota Radja (Sumatra)	5	32	95	20	23	7
*Medan (Sumatra)	3	35	98	41	79	24
*Padang (Sumatra)	0	56	100	22	23	7
*Passeroean (Java)	7	38	112	55	16	5
*Pontianak (Borneo)	0	1	109	20	10	3
*Port Moresby (New Guinea)	9	29	147	9	128	39
Samarai	10	37	150	40	20	6
*Sandakan (Borneo)	5	49	118	12	?	?
AUSTRALASIA.						
*Adelaide (South Australia)	34	56 S.	138	35 E.	141	43
Albany (West Australia)	35	2	117	50	41	12
*Alice Springs (South Australia)	23	38	133	37	1926	587
*Auckland (New Zealand)	36	50	174	50	125	38
*Boulia (Queensland)	22	55	139	38	479	146
*Bourke (New South Wales)	30	13	145	58	360	110
*Brisbane (Queensland)	27	28	153	2	137	42
Burketown (Queensland)	17	45	139	33	27	8
Camooweal (Queensland)	19	57	138	17	758	231
*Christchurch (New Zealand)	43	32	172	38	27	8
Cooktown (Queensland)	15	28	145	17	17	5
*Coolgardie (Western Australia)	30	57	121	10	1388	423
*Daly Waters (Northern Territory)	16	16	133	23	699	213
*Danger Point (New South Wales)	34	37	19	18	66	20
*Derby (Western Australia)	17	18	123	40	53	16
*Dunedin (New Zealand)	45	52	170	31	295	90
*Eucla (Western Australia)	31	45	128	58	15	5
*Georgetown (Queensland)	18	23	143	33	990	302
*Hall's Creek (Western Australia)	18	13	127	46	1224	373
*Hobart (Tasmania)	42	53	147	20	160	49
*Katanning (Western Australia)	33	42	117	35	1017	310
*Launceston (Tasmania)	41	27	147	10	30	9
*Laverton (Western Australia)	28	40	122	23	1463	466
Mackay (Queensland)	21	9	149	13	36	118
*Mein (Queensland)	13	13	142	57	400	122
*Melbourne (Victoria)	37	50	144	59	115	35
*Mitchell (Queensland)	26	32	147	52	1110	337
*Nullagine (Western Australia)	21	53	120	5	1270	386
*Onslow (Western Australia)	21	43	114	57	13	4
*Peak Hill (Western Australia)	25	38	118	47	1929	588
*Perth (Western Australia)	31	57	115	51	197	60
*Port Darwin (Northern Territory)	12	28	130	51	98	30
Richmond (Queensland)	20	44	143	10	697	212
*Rockhampton (Queensland)	23	24	150	30	37	11
Sandy Cape (Queensland)	24	41	153	16	330	100
*Streaky Bay (South Australia)	32	48	134	13	43	13

LIST OF METEOROLOGICAL STATIONS.

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AUSTRALASIA. (*Continued.*)	Latitude.	Longitude from Greenwich.	Height. Feet.	Height. m.
*Sydney (New South Wales)	33° 52′ S.	151° 12′ E.	146	44
Thargomindah (Queensland)	27 58	143 43	402	122
Thursday Island (Queensland)	10 34	142 12	17	5
Townsville Pilot Station (Queensland)	19 14	146 51	73	22
*Wellington (New Zealand)	41 16	174 46	6	2
*William Creek (South Australia)	28 55	136 21	249	76
Windorah (Queensland)	25 26	142 36	390	119
OCEANIA.				
*Ambon	3 42 S.	128 10 W.	13	4
*Apia (Samoa)	13 48	171 46	16	5
*Alofi (Niue Is.)	19 2	169 55	121	37
*Chatham Island	43 52	170 42	190	58
*Fanning Island	3 55 N.	159 23	13	4
Gomen (New Caledonia)	20 21 S.	164 10 E.	?	?
*Guam (Ladrones Is.)	18 24 N.	144 38	66	20
*Koepang	10 10 S.	123 34	10	3
*Lord Howe Island	31 32	159 4	?	?
*Malden Island	3 59	155 00 W.	26	8
*Mataveri (Easter Is.)	27 10	169 26	98	30
*Norfolk Island	29 4 S.	167 58 E.	?	?
*Noumea (New Caledonia)	22 16	166 27	30	9
*Ocean Island	0 52	169 36	92	28
*Rarotonga (Cook Is.)	21 12	159 47 W.	?	?
*Rendova (Solomon Is.)	8 24	157 19 E.	?	?
*Suva (Fiji)	18 8	178 26	13	4
*Tahiti (Low Arch.)	15 47	148 14	154	47
*Tulagi (Solomon Is.)	9 5	160 8	6	2
*Uyelang	9 42	161 2	33	10
*Yap	9 29	138 8	105	32
AFRICA.				
*Accra (Brit. Guinea)	5 35 N.	0 6 W.	59	18
Addis-Abeba (Abyssinia)	9 1	38 43 E.	7874	2400
*Alexandria (Egypt)	31 9	29 54	105	32
*Algiers (Algeria)	36 47	2 64	125	38
*Aswan (Egypt)	24 2	32 53	328	100
*Bathhurst (Cape Colony)	13 24	16 36 W.	16	5
Benghazi (Tripoli)	32 7	20 2 E.	30	9
Bizerte (Tunis)	37 17	9 50	30	9
Bulawayo (South Rhodesia)	20 10 S.	28 40	4469	1362
Cairo (Egypt) Abassia Observatory	30 4 N.	31 17	108	33
*Cairo (Egypt) Helwan	29 52	31 20	380	116
*Cape Coast Castle (Brit. Guinea)	5 5	1 13 W.	?	?
Cape Spartel (Morocco)	35 47	5 55	191	58
*Cape Town (Cape Colony)	33 56 S.	18 29 E.	30	9
*Casablanca (Morocco)	33 37 N.	7 35 W.	56	17
Ceres (Cape Colony)	33 22	19 20 E.	1493	455
*Conakry (Fr. Guinea)	9 31	13 43 W.	52	16
Constantine (Algeria)	36 22	6 37 E.	2165	660
*Dakhla Oasis (Egypt)	25 30	29 00	426	130
*Daressalam (Ger. East Africa)	6 49 S.	39 18	26	8
*Daru (Abyssinia)	9 4	143 13	26	8
*Durban (Natal)	29 51	31 00	262	80

LIST OF METEOROLOGICAL STATIONS.

NOTE.—Stations with asterisk appear in the "Réseau Mondial" of the British Meteorological Office for 1912. (London, 1917.)

AFRICA. (*Continued.*)	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
*East London (Cape Colony)	33°	2′ S.	27°	55′ E.	33	10
El-Djem (Algeria)	35	21 N.	10	38	541	165
*El Obeid (Brit. Sudan)	13	11	30	14	1919	585
*Entebbe (Brit. East Africa)	0	5	32	29	3862	1177
Fort Napier (Natal)	29	36 S.	30	23	2200	671
Fort National (Algeria)	36	38 N.	3	72	3051	930
Geryville (Algeria)	33	41	1	00	4281	1305
Grahamstown (Cape Colony)	33	18 S.	26	32	1800	540
*Gwelo (South Rhodesia)	19	27	29	49	4646	1416
*Harrar (Abyssinia)	9	42 N.	42	30	6089	1856
*Heidelberg (Transvaal)	34	5 S.	20	58	5056	1541
*Insalah (Sahara)	27	17 N.	2	27	1083	330
Ismailia (Egypt)	30	36	31	76	30	9
*Johannesburg (Transvaal)	26	11 S.	28	4	6148	1874
*Kadugli (Brit. Sudan)	11	2 N.	29	45	1650	503
*Kafia Kingi (Brit. Sudan)	9	22	24	18	1955	596
*Katagum (Nigeria)	12	17	10	22	102	31
Kenilworth (Kimberley)	28	42 S.	24	27	3950	1204
*Khartoum (Egypt)	15	37 N.	32	33	1309	390
*Kimberley (Cape Colony)	28	43 S.	24	46	4042	1232
*Kontagora (Nigeria)	10	24 N.	5	24	1312	400
Laghouat (Algeria)	33	48	2	53	2559	780
*Lagos (Nigeria)	6	22	3	28	26	8
*Lamu (Brit. East Africa)	2	16 S.	40	54	10	3
*Libreville (Fr. Congo)	0	23 N.	9	26	115	35
*Loango (Fr. Congo)	4	38 S.	11	50	?164	?50
*Lorenzo Marques (Port. East Africa)	25	58	32	36	194	59
*McCarthy Is. (Gambia)	13	42 N.	14	46 W.	13	4
*Maiduguri (Port. East Africa)	11	48	13	12 E.	1214	370
*Mauritius (Royal Alfred Observatory)	20	6 S.	57	33	177	54
Mayumba (Fr. Congo)	3	23	10	31	200	61
Mojunga (Madagascar)	15	45	46	19	134	41
Mozambique (East Africa)	15	00	40	44	13	6
*Nairobi (Brit. East Africa)	1	18	36	59	5446	1660
*Nandi (Brit. East Africa)	0	2 N.	35	5	6594	2010
Oran (Algeria)	35	42	0	39 W.	174	53
Ouargla (Algeria)	31	55	4	70 E.	407	124
Port Elizabeth (Cape Colony)	33	58 S.	25	37	181	55
Port Saïd (Egypt)	31	16	31	79	14	4
Porto Novo (Dahomey)	6	28 N.	2	40	65	20
*Pretoria (Transvaal)	25	45 S.	28	11	5170	1576
Queenstown (Cape Colony)	31	54	26	52	3500	1067
St. Denis (Réunion)	20	51	55	30	102	31
*St. Helena	15	57	5	40 W.	2073	632
St. Louis (Senegal)	16	1 N.	16	31	6	2
St. Paul de Loanda (Angolo)	8	47 S.	13	13 E.	194	59
*St. Vincent (C. Verde Is.)	16	54 N.	25	4 W.	36	11
*Sainte-Croix-des-Eshiras (Fr. Congo)	1	44 S.	10	21 E.	640	195
*Salisbury (Rhodesia)	17	49	31	3	4878	1487
*San Tiago (C. Verde Is.)	14	54 N.	23	31 W.	112	34
*Ségou (Fr. West Africa)	13	34	6	17	?892	?272
*Sierra Leone (Sierra Leone)	8	30	13	9	223	68
*Sokoto (Nigeria)	13	2	5	14 E.	1161	354
*Suez (Egypt)	29	57	32	32	10	3
*Tamatave (Madagascar)	18	9 S.	49	26	13	4
*Tananarivo (Madagascar)	18	55	47	43	4593	1400

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	Latitude.		Longitude from Greenwich.		Height.	
					Feet.	m.
AFRICA. (*Continued.*)						
Tangier (Morocco)	35°	47′ N.	5°	49′ W.	246	75
*Timbouctoo (Fr. West Africa)	16	43	2	92	820	250
*Tunis (Tunis)	36	48	10	10 E.	141	43
Upper Sheikh (East Africa)	9	56	45	11	4593	1400
Vivi (Congo)	5	40 S.	13	49	364	111
*Wadi Halfa (Egypt)	21	55 N.	31	20	420	128
*Wau (Brit. Sudan)	7	42	28	3	1444	440
*Windhuk (Ger. South West Africa)	22	34 S.	17	5	5463	1665
*Yola (Nigeria)	9	12 N.	12	30	850	259
*Zanzibar (Brit. East Africa)	6	10 S.	39	11	73	22
*Zomba (Nyasaland Prot.)	15	23	35	18	2949	899
*Zungeru (Nigeria)	9	48 N.	6	10	426	130
ARCTIC AND ANTARCTIC. (*See also* GREENLAND, ICELAND, RUSSIA, etc.)						
Bossekop	69	57 N.	23	15 E.	?	?
*Cape Evans (McMurdo Sound)	77	38 S.	166	24	59	18
*Cape Pembroke	51	41	57	42 W.	69	21
Dicksonhavn	73	30 N.	81	00 E.	?	?
Fort Rae	62	39	115	44 W.	?	?
*Framheim	78	38 S.	163	37	36	11
Jan Mayen	70	59 N.	8	28	?	?
Kingua-Fjord (Cumberland Sound)	66	36	67	9	?	?
Lady Franklin Bay	81	44	64	45	?	?
Novaya Zemlya	72	30	52	45 E.	?	?
Orange Bay	55	31 S.	70	25 W.	?	?
Point Barrow	71	23 N.	156	40	?	?
Sagastyr	73	23	124	5 E.	?	?
*Spitsbergen						
Advent Bay	78	2	15	6	590	180
Green Harbour	78	2	14	14	36	10
*South Georgia	54	14 S.	36	33 W.	13	4
*South Orkneys	60	44	44	39	23	1

INDEX.

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